THE CHEMIST AND DRUGGIST

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THE FORTHCOMING FESTIVAL.

We are delighted to hear that arrangements have been made for a friendly meeting of the members of the trade. The Committee of the "United Society of Chemists and Druggists" have engaged the great hall of the Freemasons' Tavern for the evening of Thursday, the 9th of April, and have obtained the consent of Mr. Western Wood, M.P., to preside over the meeting. We trust that the energetic gentlemen composing the Committee will be well supported in their responsibility, and that our excellent City member will have the opportunity of seeing a strong muster of that class in which he has taken so great an interest. The members of almost every profession and trade meet once a year or oftener, to exchange thoughts and promote mutual understanding, but the Chemists and Druggists, who, as educated men, are peculiarly adapted for friendly intercourse, have hitherto been singularly repellant of one another.

We hope that the dinner at the Freemasons' Tavern will draw many together who have never met before, for we know how much the trade is in need of the strength which union gives. The Committee are determined to make the meeting attractive, for we learn that arrangements will be made to invite the ladies to the dinner. Their presence will give grace to the gathering, and will materially assist the Benevolent Fund, for Charity is truly represented as a woman.

We are informed that a great many of our country friends are expected. The more the merrier, say we. The hall is large, and every chemist who enters it on the 9th proximo, will do the trade a service.

PHOTOGENIC GAS.

A short time since a series of reports, deeply tinged with *couleur de rose*, appeared in some of our daily contemporaries, on the advantages, economy, and convenience of a new light obtainable from ordinary gas, or atmospheric air, by means of Mongruel's Patent Generator.

Without drawing on these sources of information, or availing ourselves of the statements put forth in the prospectus, we will detail the result of our own examination of this invention.

On inspecting the apparatus, at 95, Bishopsgate-street Within, we found it to consist essentially of a cylindrical metallic vessel, about equal in size to the small gas meter, which measured the gas passing through it. To the exit tube of this vessel, a series of gas jets were attached, consisting of argand, fish-tail, and bat's-wing burners. The gas obtained from the main was first burned as supplied, and secondly as passed through the Generator, when an immediate and very strongly marked increase of light was observed; and moreover, the quantity of gas consumed at the same pressure was lessened about one-fourth, owing obviously to the resistance it experienced in passing through the Generator. No definite information was given as to the liquid used, nor was the interior of the Generator exhibited; but the following account appears in the prospectus.

"In M. Mongruel's Generator, the mass of the liquid is enclosed hermetically in an upper chamber, whence it descends by a small tube, to form a thin sheet on the bottom of the lower chamber, wherein its vaporization is effected, and is supplied, drop by drop, only as what has preceded it is consumed. Without springs or mechanism, which may break or get out of order, it maintains a level physically and mathematically constant, and produces the vapours regularly, according to requirement. Further, the mass of the liquid held in reserve to feed the sheet which is vaporizing cannot become impoverished, as it is sheltered from all contact with the gaseous currents."

We need hardly tell our readers that there is nothing new whatever in increasing the illuminating power of coal gas by saturating it with hydrocarbon vapours. The process was patented long ago by Mansfield, and has been practised by thousands since. We ourselves, in a prior volume, suggested the employment of the lighter products of the mineral oils for this purpose; and doubtless many others had done so before. The pedestrians passing through the streets of London must have noticed in many of the lamps an ugly red canister, which contains naphtha for enriching the flame.

In fact, the idea is almost as old as the use of coal gas itself; and the company may as well think of patenting the use of gas, as the increase of its illuminating power by any volatile hydrocarbon vapours.

With regard to the combustion of atmospheric air, after passing it through the Generator, we have no hesitation in characterizing it as one of the most absurd and impractical delusions of the day.

In the experiments shown, the air was forced from a gas holder through the Generator, and then burned in argand and bat's-wing burners, the fish-tail being out of repair. In the argands the combustion commenced with a smoky, dense flame, filling the entire glass; this in a few moments disappeared, and on carefully regulating the supply, an ordinary sized flame of very poor illuminating power resulted. The bat's-wing burner was even more unsatisfactorily, no apparent ignition took place within half an inch from the burner, then appeared a band of pale blue, non-luminous flame, terminating above in an unsteady, feebly luminous yellow light. On being turned down so as to lessen the pressure, the flame smoked to a very great extent. On requesting to see the fish-tail in operation, we were informed the *jet was out of repair*. All the experiments with atmospheric air were most unsatisfactory, nor does it require more than the slightest smattering of chemical knowledge to prove that they must of necessity be so.

Atmospheric air consists of nitrogen and oxygen; the first is not inflammable, but dilutes the gas or vapour with which it is mixed, lessening its illuminating power. The second is much more injurious in an inflammable mixture, as under these circumstances it unites instantly with the carbon on the mixture being ignited, and thus prevents the separation of the latter in a solid form, which alone gives a luminous character to the flame.

The effect of mixing air with gas may be seen in the non-luminous flame of the gas stoves that burn the mixed gases, or the lights in the butchers' shops, when the wind is sufficiently powerful to mix with the issuing gas before its ignition; and were sufficient atmospheric oxygen forced through the Generator, a pale blue, strongly heat-giving, but not luminous flame, would result. It is in fact only owing to there not being sufficient oxygen in the air employed, that there is any light emitted. The plan must be essentially a wasteful one, for the whole of the inflammable vapour which is oxidized by the air sent through, is absolutely burnt to waste; hence the pale colour of the argand flame and the pale blue of the bat's-wing.

The report of the commission appointed by the " Société des Sciences Industrielles," on the Generator Mongruel, is signed by several French celebrities of whom we have never previously heard, and is simply beneath notice. We are informed that the gas so carbonized consumes *less* oxygen, gives out *less* heat, and at the same time has both its ammoniacal and sulphurous vapours removed. The award of the society is so amusing, that we must quote it at length, even at the risk of exciting the envy of the self-appointed sanitary commissioners of the *Lancet*. The italics are our own:—

"The Society decrees to the Generator Mongruel a Gold Medal, in consideration of its application to the photogenization of gas, and especially of atmospheric air, *as one of those brilliant inventions in which the genius of man is revealed*, and which, making epochs in a century, are destined to favourably transform existing industries.

"The Members of the Commission:—Le Docteur Marquis du Planet, Chevalier de la Legion d'Honneur; Le Docteur B. Lunel, Reporter; Charles Fournier, Engineer-Chemist; Lemaire, Architect; Gendre, Professor."

In conclusion, we can only recommend our readers who require to naphthalize their gas to have recourse to any of the cheap naphthalizers in common use. To use the lightest mineral turps for the purpose. To avoid all attempts at the introduction of atmospheric air. And lastly, to lay out their money carefully in secure investments, offering a rational ground of success.

GLADSTONE AND FREE TRADE.

Our clear-headed brother the *Grocer*, in discussing the re-adjustment of the Tobacco Duties, makes the following remarks upon the general policy of our great Financial Minister:—"Mr. Gladstone has limited and defined the proper functions of a Chancellor of the Exchequer, pledged to the tenets of free trade, with all the elegant succinctness that might have been expected from a gentleman of his cultivated taste. Free trade, in its highest, purest development, of course would mean total abolishment of Excise and Customs dues, the nation's modest need of some seventy millions sterling being supplied through other channels. Mr. Gladstone would be an imaginative gentleman, even beyond the degree to which genius of his stamp is wont to be imaginative, were he to hold out hope of such contingency. What we are chiefly interested to know is, the Chancellor's idea of free trade practically considered, in relation to the necessity, which we may assume permanent, of Excise and Customs levies to be imposed. Now, we gather from expressions on many occasions recorded by Mr. Gladstone, his second or practical working notion of free trade to be such equalization of duties, in whatever case the imposition of duties has been resolved upon, as may leave all parties interested on an even footing, thus approximating to the conditions that would have obtained had there been no duties levied or leviable at all. We need not say how completely this ground of action accords with the free trade principles we have ever entertained. With Mr. Gladstone, we hold it to be no proper function of a free trade Chancellor of the Exchequer to impose a duty having any other object than that of combining the highest revenue with the highest public advantage. This combination secured, the national prosperity will assuredly have been advanced, and this we hold to be the legitimate finality of all legislation. The suffering of individuals, and even classes, by the operation of measures tending to the general weal, is a matter of regret certainly; but such things must be. Nature herself sets an example to legislation. She takes no cognizance of individual men, though ruling with an undeviating law the destinies of mankind."

LINIMENTUM SAPONIS, P.L.

BY BARNARD S. PROCTOR.

There is perhaps no formula in the Pharmacopœia which has given rise to so much discussion as that which is the subject of my present communication. Hard soap and soft, strong spirit and weak, have their advocates; it has been shown that free alkali is objectionable, that margarate of soda is objectionable, that oleate of soda is to be desired; dissolving the soap in water, and adding the spirit has been advocated; powdering the soap, macerating it in spirit, filtering it and adding water, has also been shown to have advantages: out of these suggestions and various others which have been made at the Pharmaceutical Society's meetings, or through the medium of their Journal, the Pharmacopœia Committee have to choose that formula which combines the greatest number of advantages for the forthcoming Pharm. Britt. But while this much looked-for book is still in the land of promise, and its advent is uncertain, I will occupy a few lines in comment upon the formula as it now stands.

We are directed to take two and a-half ounces of soap. Some have said that because no particular kind was specified we might use either hard or soft, but the materia medica list says, "Sapo.—Sapo. ex. Olivæ oleo et sodâ confectus," thus deciding for us that we are to use a soda soap unless "Sapo. Mollis" is specified; but even with this restriction the word Sapo. is still sufficiently indefinite to allow of considerable variation.

In the small boiler process the glycerine is allowed to remain in the soap; in the large boiler process it is separated,—here is one important difference unnoticed. Another is the per-centage of water which the soap is to contain. According to some authorities soap of commerce sometimes contains as much as two parts of water to one of soap, and the medicinal soaps, according to Pereira and others, contain from 15 to 35 per cent. of water, but I find they vary even more than this. A sample which I have had some time in stock contains only 7 per cent. of water, and a sample of the freshly-separated curd (precipitated by salt from a solution of olive oil soda soap) I find contains 40 per cent. of water; herein lies the whole secret of the matter. If we use a soap containing from 30 to 40 per cent. of water we may make our soap liniment according to the strict letter of the law, and not have it gelatinize in cold weather. If our soap is old and dry, it should be reduced to this per-centage of water, or what comes to the same thing, and is more convenient, take of the hard soap two ounces (more or less, according to its dryness), make up the two ounces and a-half with water, then add the two ounces of water ordered in the Pharmacopœia, and dissolve with heat; while fluid pour it into the spirit of rosemary, and after standing a few days filter.

THE CHEMICAL MANUFACTURES OF GREAT BRITAIN.

BY CHARLES W. QUIN, F.C.S.

It was a matter of very great regret, both to ourselves and to many of our readers, that owing to the exigencies of time and space we could not do proper justice to the numerous chemical manufactures we so cursorily described in our review of the Chemical and Pharmaceutical Products exhibited in the British portion of the International Exhibition. As our readers are aware, there were no less than 200 exhibitors at that great show, many of whom exhibited specialities illustrative of perhaps a dozen important processes. It is clear, then, that having only some twenty or thirty pages at our disposal, we were compelled to pass over many most interesting facts in a very hasty manner, while others were necessarily left out altogether.

The gigantic strides made during the last few years in every branch of chemical manufacture have gone far to render obsolete many passages in the numerous excellent works on chemical technology with which we are acquainted; besides, even the most modern of them are full of details of processes with which the pharmacist has little or nothing to do. For these and other reasons we have determined to inspect the works of some of the leading chemical manufacturers of the kingdom, and lay the results of our visits before our readers.

Before doing so we cannot miss the opportunity of thanking those firms whose factories we have already inspected for the kindness and courtesy we have received from them, and for the practical information they have been so ready to place at our disposal.

Our country friends must not feel jealous if we commence our series with the description of the works and manufactures of one of our leading London firms, whose name is synonymous with perfect excellence in every one of the processes carried on by them.

A VISIT TO MESSRS. HOWARDS AND SONS' QUININE, BORAX, AND TARTARIC ACID WORKS, STRATFORD.

This business was founded during the latter half of the last century by Luke Howard, Esq., F.R.S., the author of several standard treatises on meteorology and climatology, in conjunction with the well-known Mr. William Allen, and was removed by them to its present locality in 1805. The first-named gentleman is still living, having attained the patriarchal age of ninety-one. He is surrounded by a large number of descendants, who are more or less connected with the firm. Amongst them may be specially mentioned Mr. John Eliot Howard, the distinguished author of the magnificent *Illustrations of the Nueva Quinologia of Pavon*, and of numerous papers on quinology in various scientific journals; and Mr. S. L. Howard, whose exertions as Chairman of the Class II. Committee of the late International Exhibition contributed so largely to the success of the chemical portion of that undertaking.

Messrs. Howards and Sons' factories are situated at Stratford, on a branch of the River Lea, and cover several acres of ground. The number of workmen employed exceeds 200. With the assistance of the firm, they have lately established a literary and scientific institute, to which are attached an excellent reading-room and library.

The principal manufacture with which Messrs. Howards have identified themselves is the preparation on a very extensive scale of the various alkaloids extracted from cinchona bark, first commenced by them in 1824. Some idea of the magnitude of the business carried on in this single branch alone may be gathered from the fact that when in full work more than a ton of bark per day is consumed by them.

There is perhaps no series of products in our Materia Medica which have received so much attention from chemists, pharmacologists, and botanists, as the febrifuge alkaloids and the barks from which they are extracted. In 1826 Van Bergen enumerated no less than 637 distinct publications on the subject, a number which has been largely added to of late years by Howard, Briquet, Weddell, Karsten, and a host of others of less note. The last addition to the subject is the magnificent work lately published by Mr. J. E. Howard, *Illustrations of the Nueva Quinologia of Pavon*, which will shortly be reviewed in this journal. The inestimable benefits conferred on man by the introduction of the cinchona barks into medicine are too well known, even to the unprofessional reader, to need recapitulation here. As Englishmen, we must be peculiarly sensible of these advantages, when we consider that the whole of our tropical colonies are as it were built on foundations of cinchona bark, and that without these invaluable preparations many districts in which we have established flourishing cities and busy settlements would simply be uninhabited wastes or European graveyards. The enormous demand for quinine has of late years had a most disastrous effect on the supply of bark, the bark merchants of South America having adopted the suicidal method of destroying the trees for the sake of the bark, the inevitable consequence of which will be that this valuable tree will soon become extinct in its natural habitats. To remedy this, several reports have been at various times submitted both to the Home and Indian Governments, by Dr. Royle and others, representing in the strongest manner the necessity of providing against a speedy cinchona famine, by forming plantations of these trees in India. The supineness of the Government at last yielded before the incessant entreaties of various eminent men, and in 1859 an expedition, under the guidance of Mr. C. R. Markham, set out for Peru in quest of cinchona plants and seeds. After undergoing the greatest hardships the efforts of these brave men were crowned with success, and several hundred healthy young plants are now growing in favourable parts of the northern slopes of the Neilgherry Hills, in Southern Hindostan, having been mostly reared from the seeds obtained by the expedition. The latest reports received from Mr. McIvor, the Superintendent of the Cinchona Plantations, inform us that the young trees are in a very flourishing condition, and that before many years elapse Neilgherry barks will take a favourable position in our markets. It remains, however, to be seen how far the change of habitat will influence the quinine-producing properties of these trees.

There are so many well-known works published on the cinchona barks and alkaloids, that we need only remind our readers of one or two facts connected with them, referring them for fuller information to the last edition of Royle's *Materia Medica.* Peruvian, Countess's, or Jesuit's bark, was first introduced into Spain as a remedial agent about 1640, having cured the Countess of Chinchon, the wife of the Viceroy of Peru, of a dangerous intermittent fever. A few years before its properties were well known to the natives of the countries lying at the foot of the Andes, who had bestowed on it the appellation of *quina-quina*, or the bark of barks. Its introduction into England was met with great opposition, from an absurd idea, that having received the patronage of the Jesuits, it must be necessarily a poisonous preparation intended for the wholesale extirpation of all good Protestants, under pretence of curing them of febrile maladies. It made its way, however, in spite of this ridiculous notion, until at the end of the last century it became one of the most popular medicaments for the cure of fever, gout, and rheumatism. An immense impetus was given to its use about the year 1824, when the alkaloids *quinine* and *cinchonine* were first extracted in a state of comparative purity by Pelletier and Caventou, since which period numerous manufactories of these alkaloids have been established in England, France, Germany, and Italy.

We commenced our inspection of Messrs. Howards' works with an examination of an interesting series of barks, consisting of typical specimens of every year's importation, from 1824 to the present time. They are all labelled with name, locality, and per centage of alkaloids, and form a complete history of the British bark trade for the last thirty-nine years. The bark imported from certain localities is sent over in skin cases, from others in coarse woollen bags. These latter have been made into garments in thousands by the firm, and despatched to our suffering Lancashire operatives. Before being used the bark is sorted with the greatest care, as the bark merchants are not always sufficiently scrupulous to avoid sending now and then some odd specimens of false bark. It would occupy too much of our space to give every detail connected with the extraction of the alkaloids from the bark. The process may be shortly described as follows:—The crushed bark is exhausted by several boilings with water, acidulated with sulphuric or hydrochloric acid. The several decoctions are mixed and filtered. When cool, slaked lime is added, until the liquid becomes alkaline and dark in colour. The precipitate formed is collected, drained, pressed, and reduced to powder when dry. It is afterwards digested in rectified spirit and filtered, the spirit being distilled off until the tincture assumes a treacly consistency. Dilute sulphuric acid is now added, and the liquid is again filtered and crystallized; the yellowish sulphate obtained being decolorized by re-solution with animal charcoal and recrystallization. It is finally dried with great care, at a very gentle heat, to avoid the slightest efflorescence. Sulphate of quinine is always more or less contaminated with the sulphates of the other alkaloids existing in the barks, such as quinidine or cinchonine.

From the experience gained by nearly forty years' study of the nature and properties of these alkaloids, Messrs. Howards are enabled to produce sulphate of quinine almost free from impurity. According to Dr. Herapath of Bristol, their sulphate of quinine contains hardly 5 per cent. of the quinidine salt, while ordinary "hospital quinine" often contains ten times that amount. There has, however, always been a demand for cheap quinine substitutes, which has often been supplied by the compounds of uncertain composition known as "hospital quinine," which is a mixture of several of the cinchona alkaloids in varying proportions, and *quinoidine*, which is a resinous, amorphous substance, bearing the same relation to the crystallizable alkaloids that treacle does to sugar. Messrs. Howards have constantly endeavoured to prevent the necessity of employing those uncertain compounds—first, by reducing the cost of working so much as to bring the price of quinine down from one guinea to seven shillings and sixpence, even while the price of the raw material has been rising; and, secondly, by the introduction of pure salts of some of the other alkaloids. They were the first to introduce as an article of commerce the sulphate of quinidine, an alkaloid which rivals in its properties the sulphate of quinine, at a price varying from one-half to two-thirds that of the latter salt. Such, however, has been the demand for sulphate of quinidine, that the price has risen to nearly that of the dearer compound. At the International Exhibition they exhibited two new salts—the sulphate of cinchonidine and the muriate of cinchonine. The latter salt has since obtained a very extensive sale. It greatly resembles sulphate of quinine, both in external appearance and in its medicinal properties, while its low price constitutes it the cheapest known febrifuge. According to Dr. Macpherson, the salts of cinchonine have been extensively used in India for the cure of fevers with excellent effect; the directors of the Cinchona Plantations should, therefore, turn their attention to the introduction of the cinchonine yielding bark trees as well as to those containing quinine. British quinine manufacturers were protected for many years by an import duty of 6*d*. per ounce on manufactured salt, which, considering the greater cheapness of spirits of wine on the Continent, could hardly be called excessive. This was removed in 1860 by Mr. Gladstone, and the English manufactured article was exposed to an unfair competition. Messrs. Howards have nevertheless held their ground, both in the home and foreign markets, not so much by equality of price as by the greater purity and beauty of appearance of their manufactures.

Messrs. Howards have long been celebrated for the superior make and quality of their borax. They have manufactured it at different times from the Thibet tincal, the borate of lime found embedded in the saline deposits of the coast of Peru; and from the boracic acid supplied to them from the Tuscan lagoons worked by Count Lardarel. The latter product, of which they are amongst the largest consumers, is the principal raw material at present used. The mode of manufacture consists in fusing the crude boracic acid with half its weight of soda ash on the floor of a reverberatory furnace; the mixture frets and effervesces, and is constantly stirred; during the operation a quantity of carbonic acid and ammonia escapes, the latter gases being carefully condensed. The fret is then lixiviated in iron boilers, and allowed to rest until the impurities have subsided. The liquid is then drawn off into leaden tanks, and allowed to crystallize very slowly, as the fancy of the market is to admire large crystals. The ammonia which escapes from the reverberatory furnace is condensed and made into liq. ammon. and ammon. bicarb., two products which are highly valued as articles of commerce, on account of their freedom from the poly-ammonias and hydrocarbons always found in the ammoniacal compounds obtained from gas liquor.

The manufacture of tartaric acid and Rochelle salt is also carried on on a very large scale. The raw material in this instance is the argols or crude tartar obtained from the various European wine districts. A few samples of tartar have lately been imported from the new wine growing districts of South America, and it promises to become a valuable article of commerce. Crude tartar is an impure bitartrate of potash. In order to prepare the pure acid, the rough tartar is dissolved in water, and chalk is added in equivalent proportions until tartrate of lime is precipitated, neutral tartrate of potash remaining dissolved. The tartrate of potash in solution is decomposed by chloride of calcium, thus the whole of the tartaric acid is separated as tartrate of lime. The product of the double operation is digested with dilute sulphuric acid, sulphate of lime being precipitated and tartaric acid set free. The clear cold solution is then evaporated, crystallized and recrystallized, great care being taken to avoid the slightest traces of sulphuric acid. Rochelle salt, the double tartrate of potash and soda, is made by combining an equivalent of carbonate of soda with the purified bitartrate of potash, and crystallizing.

Citric and benzoic acids are also largely manufactured by Messrs. Howards. The benzoic acid is the finest we ever saw, the commercial quality being sent out in laminar crystals, one and a half and two inches in length. The manufacture of camphor is interesting. The crude material is placed in large globular flasks, furnished with a short wide neck; heat is applied by means of a sand bath, and as soon as the camphor melts, a portion of lime is added, and each flask is covered with a globular receiver, in which the sublimed camphor gradually condenses, in the form so well known in commerce. A curious chemical difficulty lately arose during the manufacture of camphor from a certain cargo of raw material. The camphor no sooner began to sublime, than the whole factory became filled with a most unsupportable stench, which put even the workmen to flight. The cause was long sought for in vain; portions of the crude material were analyzed without giving any clue. At last a workman picked up a piece of the crude camphor, to which were sticking some very perceptible portions of sulphur. The whole mystery was thus solved at once. The barge which had been used for the conveyance of the camphor had been employed for sulphur, and thus one of the many evil smelling compounds of that element with organic matter was produced as soon as heat was applied to the mixture.

The bicarbonate of soda is here manufactured with the greatest care. The ordinary method consists in passing carbonic acid gas over soda crystals and powdering the resulting compound, which is a mixture of bicarbonate and carbonate of soda. The pure bicarbonate has, of course, a much less caustic taste than this compound. Its purity is insured by taking only the outer portions of the carbonated crystals or "birds' nests," as they are technically termed, and by drying the crushed salt in a very ingeniously contrived chamber, in which a gently heated current of air is made to circulate over trays containing thin layers of the salt.

Pure bicarbonate of potash is also prepared by Messrs. Howards with especial care. There is a cheap make of this material offered for sale, which is contaminated with carbonate of lead, from being evaporated in leaden vessels, the presence of this deleterious salt not betraying its presence to the eye. In this factory the whole of the vessels employed are non-metallic, so as to secure its suitableness for medicinal purposes.

The mercurial preparations of this house have also long been famous. The calomel is prepared in a peculiar manner by sublimation with water. By this means is secured the total absence of any admixture of corrosive sublimate, so embarrassing in its effects to the unfortunate patient to whom calomel containing this impurity has been administered.

As a curious instance of the increase which has taken place of late years in the amount of ether used through the introduction of this compound with photography, we may state that a few years ago Messrs. Howards made only a few gallons of ether weekly, while at the present time their annual production is not less than fifteen tuns.

The manufacture, too, of the bicarbonate of soda is another instance of wonderfully increased rate of production. At one time this firm were almost the only makers of this article, the whole make of the country being not more than half a ton a week; now it is made in the North of England in thousands of tons annually. Tartaric acid, also, may be cited as another instance of this advance, the productions of this one factory alone being four or five times the amount made in all England in 1820.

The scale preparations made by Messrs. Howards are all warranted to contain certain proportions of the most active ingredients; thus the citrate of iron and quinine prepared by this house is guaranteed to contain exactly 25 per cent. of the citrate of quinine. The practice of making such preparations of standard strength cannot be too strongly commended, as the proportions of the most active portion of these elegant medicaments is found to vary within the most extravagant limits in different samples.

We might go on describing the manufacture of fifty different articles in daily use in pharmacy as manufactured by Messrs. Howards, and give interesting details of a hundred ingenious contrivances practised by them to insure perfect purity in even the commonest materials used in medicine; but a tyrannical editor has limited the space at our disposal, and we must most reluctantly terminate our visit, first passing through a well-appointed laboratory, in which we find every possible appliance for analyzing samples of the different manufactured products of the works. This little chamber gives us at once the key to the secret of the continuous growth in eminence and importance of the firm whose works we are describing. Founded by two men of high scientific attainments, they were amongst the first of our chemical manufacturers who recognised the value of conducting a scientific manufacture on scientific principles; and the scale upon which the business is now carried on, and the position that their productions occupy in the markets of the world, are standing proofs of the truth of the doctrines we have always endeavoured to inculcate in this journal.

NEW REMEDIES.

EUPATORIUM PERFOLIATUM.

SYNONYMS.—BONESET, FEVER-WORT, THOROUGH-WORT, &C.

About thirty species of this genus, all probably resembling each other more or less in their medicinal qualities, are reported to inhabit the States of America, and of these, at least sixteen are said to be found in the Northern portion.

The species Perfoliatum, which is officinal in the "United States Pharmacopœia," is indigenous throughout the States, inhabiting meadows in low marshy grounds, the banks of streams, and other moist localities.

Its popular name Boneset, was acquired by its great success in relieving the pain attendant upon an epidemic form of influenza, in which the fever that accompanied the disease was called "Break-bone fever."

Botany.—The root is perennial, horizontal, and crooked. The stems are numerous, cylindrical, herbaceous, erect, of a greyish green colour, and hairy; simple at the base, but divided near the summit into three branches. They vary in height from two to five feet. The leaves are simple, rarely divided, oblong, serrate, broad at the base, tapering to an acute point, and generally opposite when their bases cohere and enclose the stem, sometimes alternate or verticillate. They are hairy, often covered with resinous dots, and of a greyish green colour on the upper surface, but paler underneath. The upper ones, although destitute of leaf stalks, do not cohere round the stem. The flowers are white, or according to some authorities, occasionally purplish or blue, arranged in corymbs with a flattened summit. They commence blossoming about August, and continue to bloom till the end of October. Some botanists consider that several varieties of this species exist, distinguished by the greater or less pubescence of their leaves. It belongs to the family *Compositæ* or *Asteraceæ*—the Composite order.

Chemistry.—The herb has a slight odour, and an intensely bitter, and somewhat peculiar flavour, but without acrimony or astringency. Both water and alcohol extract its virtues, which are said to reside in a resin and a bitter principle. According to Rafines, it contains a peculiar brown, bitter, resiniform substance, which he calls *Eupatorine:* he describes it as soluble in water and acids, with the latter of which, both mineral and vegetable, it combines to form salts. Some think the bitter principle to be due to the presence of an alkaloid.

Medicinal Properties.—This plant is stated to possess "a diversity of properties," and to "fulfil a variety of indications according to the dose and mode of exhibition." Thus it is alterative, diaphoretic, diuretic, emetic, expectorant, purgative, and tonic, and has been employed in catarrhs, colds, dropsy, dyspepsia, fevers, pneumonia, general debility, &c. It is stated to have been employed by the Indians in intermittent fevers, and to have been used with success by several regular practitioners, but its efficiency is said to depend greatly on the mode of administration. It has for many years been a popular remedy for colds and catarrhal affections.

In the year 1812, a thorough trial was made of it in the treatment of intermittents, in the New York Alms-house, and Dr. Anderson states that "its use was attended with uniform success." It was also "extensively employed," he says, "about that time, in the public institutions of New York, in remittent and yellow fever, in typhus, pneumonia, catarrhal fevers, several cutaneous affections, in dropsies, and for the removal of mere debility; and by properly regulating the administration of the medicine it fulfilled successfully all these indications, and exerted a decidedly curative effect.* Drs. Bard and Hosack "thought very favourably of it as a diaphoretic, and were in the habit of frequently prescribing it in the above affections, but generally as auxiliary to more powerful remedies." Dr. Bigelow "speaks highly of its good effects as a tonic in loss of appetite and other dyspeptic symptoms, as well as in general debility." Dr. Burgon, of Pennsylvania, praises it very highly in cases of want of appetite consequent to drunkenness, and says, "In such cases I have used a cold infusion with evident benefit, and I prefer it to any article I have hitherto employed; it very speedily restores the tone of the stomach, and no unpleasant effects follow its administration."†

Dr. Eberle found it particularly useful in the case of very old people labouring under indigestion; and states that "it gives tone to the stomach, and renders the skin soft and comfortable." He also praises it as "an excellent substitute for camomile tea, to promote the operation of an emetic." Dr. Lee‡ observes:—"With regard to the use of this plant in influenza, whether sporadic or epidemic, we have found it possessing great efficacy, relieving the pain of the back and limbs, as well as the general lassitude, with great promptness; for although in this disease the skin is often bathed in perspiration, yet it is of a morbid character, the surface being pale and morbidly sensitive, and the excretion of a passive kind. Where the secretions are of this morbid nature, and the pulmonary system is involved, the boneset has proved, in our hands, a most valuable remedy, inducing a healthy and free perspiratory discharge, and replacing the chilly or febrile sensations with a uniform and healthy glow. In such cases it acts very efficiently as an expectorant, and proves as powerfully remedial as can be expected from any single remedy whatever;" and again §:—"We have seen excellent effects from the cold infusion of this plant, taken as a prophylactic, in malarious districts, against fever and ague; also as a stomachic tonic, in the form of tincture." Rafinesque states "that it appears to be superior to chamomile as a sudorific tonic, and preferable to cinchona in the treatment of the local autumnal fevers of the country, and that he has seen them cured by it when other tonic remedies failed." He also adds:—"No other tonic of equal activity can be exhibited in fevers with less danger of increasing excitement or producing congestion, the only objection to its use being its nauseous and disagreeable taste, but this may be obviated by combining it with aromatics;"‖ and Dr. Lee adds:—"This last suggestion we have found a valuable one, and especially where there is any gastric irritability present." Dr. Thacher, who tried it extensively in various diseases, considered that in anasarcous swellings of the extremities, depending on general debility, the alcoholic tincture of the plant may be safely recommended as an excellent tonic. Dr. Zollickoffer thinks there is no indigenous vegetable production of the States that is more deserving the attention of physicians than this; that it possesses medicinal virtues which are admirably adapted to a variety of affections; and that in conjunction with bitartrate of potash, it is one of the most valuable and efficient remedies in tinea capitis."

Preparations and Doses.—Messrs. Tilden and Co. give the following:—Fluid extract: ʒj. to ʒij. This is said to be the best preparation for general use as a tonic and tonic alterative. Solid extract, grs. v. to grs. xx; eupatorin, grs. j. to grs. ij. This, which is the bitter alkaloid extract, is an admirable form for intermittents, and also for a tonic dyspepsia and general debility. Messrs. Tilden also give formulæ for a tincture, infusion, compound infusion, and syrup.

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* Tilden's Mat. Med., vol. ii. p. 246.

† Ibid, p. 247.

‡ Ibid, p. 244.

§ Ibid, p. 247.

‖ Ibid, p. 247.

EUPATORIUM PURPUREUM.

Synonyms.—Gravel-plant or Gravel-root, Queen of the Meadow, Trumpet-weed.

This species of Eupatorium is said to be one of the best-known and most generally employed. It is a perennial, herbaceous plant, growing in woods and meadows, in similar situations as the species Perfoliatum, throughout the Northern, Western, and Middle States of America.

Botany.—The stem is of a purple colour, and five or six feet in height; the leaves are ovate, lanceolate, serrate, wrinkled, and clothed with short rough hairs, petiolate, and arranged four or five together, in the form of whorls. The flowers are of a purple colour, and blossom during the months of August and September.

Chemistry.—The root, which is the part employed in medicine, possesses a bitter aromatic astringent taste, considered by some as not unpleasant, and yields its virtues to water and spirit. A so-called concentrated preparation, termed *Eupurpurin* is obtained from it.

Medicinal Properties.—According to Dr. Lee,[*] "It operates on the kidneys and urinary organs generally, and has considerable reputation in gravelly affections. It is said to be more effectual in the removal of uric acid deposits than of other calculous formations, and to have been successfully employed in chronic inflammation of the bladder and urethra, and in atonic conditions of the genito-urinary organs generally. It is reported to possess diuretic powers far exceeding any other remedy, and therefore to prove of immense value as a remedial agent in dropsical complaints. It is said that three grains of the principle eupurpurin, given every three or four hours, cause an enormous flow of urine. As a remedy for dropsy it has long enjoyed considerable reputation, especially among that branch of the profession known as "eclectics," who suppose that in addition to its diuretic properties, it stimulates the absorbent vessels. They also place great reliance upon it in dysentery, hæmoptysis, hæmatemesis, and other hæmorrhages. As an expectorant in asthma, bronchitis, catarrh, influenza, whooping-cough, and other pulmonary affections it has been long celebrated.

Preparations and Doses.—Eupurpurin, which is considered by Dr. Lee to be a union of the principle eupatorin and the resinous principle, is more stimulating than Eupatorin itself, and is best adapted for alterative purposes; it is given in doses of from three to four grains. The other preparations are the same as those in the species Perfoliatum.

DR. FRANKLAND ON ARTIFICIAL ILLUMINATION.

On Friday, February 7, Dr. Frankland delivered a lecture at the Royal Institution, on "Artificial Illuminating Agents." After alluding to the employment of the electric light in its various modifications, Dr. Frankland described the formation of the new illuminating agent, produced when coal gas is exposed to a high temperature; this is termed acetylene, and is valuable as possessing a high illuminating power, and interesting as forming an explosive compound with copper, which has doubtless been the cause of the mysterious explosions that have frequently taken place in gas tubes formed of that metal.

Dr. Frankland described the great advantage of the double cylinder gas burner, which has been illustrated in our columns,[†] stating that it effects a saving of 33 per cent.; or, when equal quantities of gas are burned in it and in a common burner, the increase in illuminating power was upwards of 60 per cent.

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[*] Tilden's Mat. Med. vol. ii. p. 249.

[†] Vol. II., pages 60 and 331.

Dr. Frankland then entered into an examination of the relative value of the ordinary illuminating agent, and exhibited the following diagram, showing the quantities of other substances required to give the same amount of light as would be obtained from one gallon of paraffine oil:—

Paraffine oil	1·00 gallon.
American rock oil (1)	1·26 ,,
,, ,, (2)	1·30 ,,
Paraffine candles	18·6 pounds.
Sperm ,,	22·9 ,,
Wax ,,	26·4 ,,
Stearic ,,	27·6 ,,
Composite ,,	29·5 ,,
Tallow ,,	39·0 ,,

On inquiry as to the particular specimen of rock oil used, we ascertained that it had been purchased retail, and that the manufacturer was not known; but as the specimens shown ignited at a very low temperature, it is obvious that inferior samples had been obtained, as the illuminating power of the best mineral oils is very considerably superior to that of the paraffine oil.

Dr. Frankland then entered into a consideration of the cost of the light yielded by each; this was shown in a diagram exhibiting the comparative cost of the light of twenty sperm candles, each burning ten hours, at the rate of 120 grains per hour:—

	s.	*d.*
Wax	7	2½
Spermaceti	6	8
Tallow	2	8
Sperm oil	1	10
Coal gas	0	4¼
Cannel gas	0	3
Paraffine candles	3	10
,, oil	0	6
Rock oil	0	7½

The amount of carbonic acid produced, and heat evolved, per hour, in obtaining a light equal to twenty sperm candles, each burning 120 grains an hour:—

	Carbonic acid in cubic feet.	Units of heat.
Tallow	10·1	100
Wax Spermaceti	8·3	82
Paraffine	6·7	66
Coal gas	5·0	47
Cannel gas	4·0	32
Paraffine oil Rock ,,	3·0	29

Thus it will be seen that the mineral oils are the best sources of artificial light, inasmuch as they are the cheapest, except gas, which they equal, in producing the largest amount of light, with the least possible heat.

It is to be regretted that the lecturer did not display the economic value of the mineral oils to the best advantage. The lamps in which they were burned were not by any means of a good construction, and the samples of American oils used of inferior quality, so that they contrasted unfavourably with the paraffine oil employed. This would not have been the case if the company to whom Dr. Frankland applied for specimens had had the courtesy and good sense to comply with his request; and they have but themselves to thank if the inferior samples obtained by chance are regarded as average specimens of the value of mineral oils.

SCIENCE

THALLIUM, ITS SOURCES, PREPARATION, AND PROPERTIES.

At a meeting of the Royal Society, held at Burlington House on February 19, there was an unusually numerous attendance of members to hear Mr. Crookes' voluminous and exhaustive paper "On the Sources, Preparation, and Properties of Thallium." Some idea may be gained of this memoir when we state that nearly two hours were occupied in reading the most important portions only of this valuable memoir.

The most remarkable facts that were brought forward respecting this widely-diffused, though not abundant, metal we will briefly notice.

Thallium melts at 550° Fahr., and at a less heat may be readily welded, a property that has hitherto been regarded as peculiar to iron and platinum.

The specific gravity of thallium varies from 11·8 to 11·9, according to the mode of preparation. When freshly cut it has a dull white colour, destitute of the brilliancy of polished silver. Exposed to the air it tarnishes rapidly, a straw-coloured oxide making its appearance on the surface. This oxide is alkaline and caustic to the taste, and much more soluble than the oxides of silver and lead. The metal is remarkable for its strongly-marked diamagnetic characters, resembling bismuth in this respect. The alloys of thallium are very remarkable. Copper, alloyed with only one-half per cent. of thallium, becomes quite brittle; but the alloy with tin is malleable.

If the oxide of thallium be regarded as a protoxide, and the formula of its sulphate as TlO, SO_3, then the atomic weight of the metal is about 203. Much attention has been lately paid to the spectrum of this metal, both by Mr. Crookes and Professor Miller. When exposed to the high temperature of the electric arc, the single green line which appears when thallium is burnt in a Bunsen's gas jet, and from which the metal derives its name, is resolved into several green, blue, and other lines. It is a remarkable example of the extraordinary power of the spectroscope as an instrument of analytical research, that by its aid as minute a portion as the one-five millionth part of a grain has been detected.

In the discussion which ensued at the conclusion of the reading of the paper, Professors Miller and Williamson, and Dr. Stenhouse, bore testimony to the energy and unwearied industry with which Mr. Crookes had investigated the properties of this metal.—T.

SPECIFIC HEAT OF THALLIUM.

The investigations respecting this metal are rapidly making us acquainted with the whole of its properties. Regnault has recently most carefully inquired into its specific heat, and finds it to be ·03355.

TESTING FOR POISONS.

In our last number one of our regular contributors remarked, with justifiable candour, on Dr. Letheby's absurd proposition to detect arsenic in paper hangings by the verification of the presence of copper, and on a further proposal to improve this fallacious test by Mr. Horsley.

This communication has unfortunately given great umbrage to the latter gentleman, who has written to us complaining of the attack on his proposed method. We extract the essential part of his letter:—

"For the information of your readers I will just observe that if a small piece of pale green wall paper (supposed to contain arsenite of copper) be immersed for a minute or so in a measure containing about half a teaspoonful of water and liq. ammonia, a deep blue colour will be derived from the copper, but to get at the indication of *arsenic*, a small crystal of nitrate of silver must be introduced, when the yellow arsenite of silver will form at the *bottom* of the vessel, and remain observable for a long time, *provided it be not agitated*, when, as a matter of course, the excess of ammonia in the upper portion of the liquor dissolves it, causing it to disappear; the same effect may be frequently renewed with different portions of the same liquid by the addition of a fresh crystal of the nitrate, even a single drop of the blue liquid on the foot of a wine or test glass will suffice for an experiment, and will show 1-500,000th of a grain."

According to Mr. Horsley's own showing, the test is rather a ticklish one, but we will accept his assurance that the arsenite of silver, which is excessively soluble in ammonia, does make its appearance under certain favourable circumstances. Mr. Horsley's tests for poisons are too delicate to be properly appreciated by those he is pleased to designate as his "brother chemists." Some time since, he suggested nitro-prusside of sodium as a colour test for strychnine, when certain obscure analysts were unkind enough to say that nitro-prusside of sodium, if pure, was no test at all.

Mr. Horsley, with the candour of a great man, acknowledged that by chance he had used as a test a solution of what he considered nitro-prusside of sodium, and thus eloquently explained his position with respect to his critics:—

"Harvey, Galileo, and a host of other eminent men in bygone ages, have been discredited, and evil spoken of, because what they advanced was not at first sufficiently understood and appreciated, so that I cannot expect to be singular."

When a man has that innate consciousness of superiority that leads him modestly to class himself with Harvey and Galileo, we can only approach his statements with fear and trembling. Mr. Rodgers, who was formerly Lecturer on Chemistry at the St. George's School of Medicine, had the unblushing effrontery to state that Mr. Horsley's tests were impure, and that his practice was fallacious; for that the reagent he employed and thought pure nitro-prusside of sodium, proved to be by his own admission, a compound of one of the best known colour tests for strychnine, namely ferridcyanide of sodium. Poor Rodgers! in after ages, when the names of Harvey, Horsley, and Galileo are alike reverenced, that of Rodgers will be held up to scorn and ignominy, as the cognomen of the envious assailant of one of the most eminent of men. Such being the case, can Mr. Horsley,—we beg pardon—can the "eminent Horsley" wonder at our contributor concealing himself under the common initial, "T," and hesitating to proclaim his name openly, an act which would expose him to the scorn of generations yet unborn?

REVIEWS

A Manual of Elementary Chemistry, Theoretical and Practical. By George Fownes, F.R.S., late Professor of Practical Chemistry in University College, London. Ninth Edition. Revised and corrected. John Churchill and Sons. 12*s.* 6*d.*

The comprehensive, yet compact text-book, prepared by the late Professor Fownes for the use of the chemical student, has again been revised by Drs. H. Bence Jones and A. W. Hofmann. A third edition was called for during the life of the author, and the wish to render that edition as perfect and as minutely accurate as possible kept him at work until a few hours previous to his death in January, 1849. When he laid down his pen, saying he should "do no more," he knew that all the more important additions and corrections required for the realization of his wish had been made. The editors of the six editions which have been published since 1850, have found it possible to notice all the recent discoveries in chemical science, without altering the main features of the original work, and in the advertisement they have just penned they adhere to their opinion "that the time has not arrived for abandoning the natural history of classification which Professor Fownes has taken as the basis of his manual."

No great discovery is associated with the name of George Fownes; but all who knew the young professor state that he was a most careful and patient experimentalist. Had his life been prolonged he might have earned the right to occupy one of the highest niches in the temple of Fame, among those philosophers whose practical researches or theoretical views have accelerated the development of chemistry. The work actually done by him, however, will not be soon forgotten. His essay entitled *Chemistry, as Exemplifying the Wisdom and Beneficence of God*, ranks high among the standard works on natural theology; his *Rudimentary Treatise* is an extremely concise and lucid exposition of the great truths of chemistry; and his *Manual* is perhaps the handiest chemical text-book ever offered to the student. The remarkable excellence of the latter work may be traced to the evident pains taken by the author to state every fact and describe every process in as few words as possible. The sketch of Physical Science which forms Part I. of the Manual has always appeared to us as a most striking example of the union of brevity and perspicuity in literary composition. In about 100 pages all the great laws of heat, light, magnetism, and electricity are described with great clearness.

As Fownes's *Manual* must be a familiar book with the majority of our readers we will not expatiate upon its general excellence, but will merely point out a few of the many alterations and improvements made in the present edition, in consequence of the progress of chemical science during the last two years.

An outline of the new method of Analysis by Spectrum Observations is given, with explanatory diagrams, and the great discoveries made through it are fully described. A page is devoted to the new alkali metals, *Caesium* and *Rubidium*, discovered by Bunsen and Kirchhoff; and another to the more remarkable metal *Thallium*, which has been brought to light by the investigations of our countryman, William Crookes.

An abstract of Graham's brilliant researches on Diffusion and Dialysis is inserted, and illustrations are given of the apparatus used.

In Organic Chemistry, an account of the recent extension of the theory of *acids* and *polyatomic alcohols*, and a chapter on the *new colouring matters derived from coal-tar* form the chief additions; but throughout the whole of this portion of the work the results of the latest researches of importance are recorded.

In Animal Chemistry a notice of the remarkable experiments of Pettenkoffer on Respiration has been added.

We agree with the editors in thinking that it would have been premature to re-arrange the work according to the chemical rotation proposed by Gerhardt, for his views, though rapidly gaining ground, are not yet generally received. The substance of these views, in the form they have assumed in consequence of the latest researches, is given in an Appendix, which contains also a synopsis of the more important groups of chemical substances, classified according to the new system.

To give some idea of the magnitude of this admirable work, we may state that it consists of upwards of 800 closely printed pages, and that the index comprises more than 3000 distinct references.

A Dictionary of Chemistry and the Allied Branches of Other Sciences. By HENRY WATTS, B.A., F.C.S., &c., assisted by Eminent Contributors. Part I. *Abichite—Ammoniacal Salts.* Longmans.

The great work which is to take the place of Ure's *Dictionary of Chemistry and Mineralogy*, and to represent the present condition of one of the most important and comprehensive departments of knowledge is now passing through the press. It is to be completed in sixteen parts, price 5*s.* each, and is intended to form three or four large volumes. The name of Henry Watts, the learned editor of the *Journal of the Chemical Society*, and translator of Gmelin's *Handbook of Chemistry*, will be accepted by the scientific world as a sure sign of the careful treatment of every subject and accuracy of every statement. Mr. Watts states that in compiling the work he has freely availed himself of the stores of information in Gmelin's *Handbook*, Gerhardt's *Chimie Organique*, Rose's *Traité d'Analyse Chimique*, Dana's *Mineralogy*, Rammelsberg's *Mineralchemie*, the

Handwörterbuch der Chemie, &c.; and has endeavoured, by careful consultation of original memoirs, to bring the treatment of each subject down to the present time. He has moreover been fortunate in obtaining the co-operation of fourteen of our most eminent chemists, namely, Dr. Atkinson, Mr. F. T. Conington, Mr. William Dittmar, Mr. G. C. Foster, Dr. Frankland, Dr. Fred. Guthrie, Dr. Hofmann, Mr. W. S. Jevous, the late Mr. C. E. Long, Dr. Odling, Dr. H. E. Roscoe, Dr. W. J. Russell, Dr. Williamson, and Mr. A. W. Wills. Were we to give the significant letters and titles which belong to this imposing list of contributors we should fill a whole page of our journal.

The work was originally intended as a new edition of that of Dr. Ure; but the great changes made in chemical science since 1831, when the last edition of Ure's *Dictionary* was published, have rendered it almost impossible to adapt any matter written so long ago to the existing requirements of the science. The present must therefore be regarded as essentially a new work, in which only a few articles of a descriptive character are reprinted. Its aim and scope are thus explained in the prospectus printed on the cover of Part I:—

"The work is essentially a Dictionary of Scientific Chemistry, and is intended as a Companion to the New Edition of Ure's *Dictionary of Arts, Manufactures, and Mines.* For the details of manufanturing operations, therefore, reference is for the most part made to the work just mentioned; but the principles on which such processes are conducted, and the chemical changes which they involve, are explained in this Dictionary as fully as its limits will allow. Particular attention has also been given to the description of processes of Analysis, both qualitative and quantitative.

"In order that the work may, as far as possible, truly represent the present state of scientific chemistry, it has been found absolutely necessary to make the modern or 'unitary' scale of atomic weights the basis of the system of notation and mode of exposition adopted. Especial care has, however, been taken that the treatment of all Articles which are likely to be consulted, for the sake of practical information, by manufacturers, or others not exclusively occupied in chemical pursuits, shall be such as to make them readily intelligible to all who possess a general knowledge of chemistry, though they may not have followed closely the recent developments of the theoretical parts of the science. Hence, in all such Articles (as ACETIC ACID, ANTIMONY, COPPER, &c.) the formulæ are given according to the old notation, as well as according to that adopted in the rest of the work."

The principal articles in the part already issued are on ACETIC ACID, ACIDS, ALCOHOL, ALCOHOLOMETRY, and ALKALOIDS. The article on ACIDS is by Mr. G. C. Foster, and is a masterly exposition of the old and new views, respecting these important "salts of hydrogen." Want of space prevents us giving anything like an analytical account of the matter, contained in the 192 large pages of Part I., but we hope to be able to return to the consideration of Mr. Watts' great work many times during its publication.

A Systematic Hand-book of Volumetric Analysis. By Francis Sutton, F.C.S. John Churchill and Sons, 7*s.* 6*d.* We have prepared a lengthly notice of this thoroughly practical treatise upon the quantitative estimation of chemical substances by measure; but for want of space we are compelled to postpone its publication until next month. We will merely state now, that it is a work which every practical chemist, and pharmaceutist ought to have within reach.

NOTES OF NOVELTIES

PARHYDOR OR PATENT IMPERMEABLE SILK.

Samples of this exceedingly valuable material have been forwarded to us by Messrs. Savory, the wholesale agents for its sale.

The Parhydor is designed to supersede oiled silk in cases where the latter is used for surgical purposes. It is far superior to any oiled silk that has ever come under our notice, being much thinner in texture, more flexible, and not showing any tendency to crack even when sharply bent. It is altogether free from the disagreable smell of oiled silk, and is not rendered sticky by any increase of temperature; in fact it may be subjected to boiling water, or even boiled, without alteration, or may be freely washed with hot water and soap, without curling up at the edges. Not being formed of drying oils, it has no tendency to spontaneous combustion when packed up in bulk, and hence may be safely exported in large quantity.

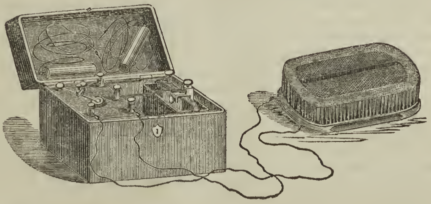
We regard this material as a very important improvement in medical appliances; the temptation to employ oiled silk that had been in use until it became damaged and even offensive, is, from the costliness of the article, very great; here we have a substitute that can be thoroughly purified by boiling water when soiled, and so restored to its original unobjectionable state. For water dressing and the treatment of ulcers, we regard it as especially valuable, as it appears perfectly impervious to water or vapour, and not in the slightest degree irritating to the skin, or otherwise injurious when in use. Another great advantage it possesses is its extreme degree of transparency; the letterpress in the present page is perfectly legible through four or five thicknesses of the Parhydor, consequently a single layer offers no impediment to the inspection by the surgeon or patient of the parts which are covered by it, a circumstance of no small value in the case of an irritable wound, when, perhaps, the only cause for the removal of the dressing would be the necessity for looking at the injury.

SCHACHT'S LIQUOR BISMUTHI.

Mr. Schacht, Pharmaceutical chemist, of Clifton, has forwarded a sample of a fluid preparation of bismuth, which is not decomposed by dilution. It is said by those physicians who have employed it to act better than the old forms of this agent, particularly when used to allay acute irritability of the stomach. It is obviously a much more satisfactory mode of administering a remedy, to use a fluid than to employ a heavy insoluble powder. Messrs. Drew and Messrs. Savory are the London agents.

CHILD'S GALVANIC BRUSH AND BATTERY.

Under the names of Magnetic and Galvanic Brushes a considerable number of inventions have been laid before the public from time to time; many of these have been mere toys, quite incapable of transmitting any galvanic current through the skin. In the present instance this is certainly not the case, for we have here an instrument that is capable of transmitting a current which, if required, can be made so powerful as to be absolutely painful; or can be modified by altering the adjusting screws to any desired strength. The mahogany box represented to the left of the engraving contains a very efficient electro-magnetic battery, with its accompanying galvanic cell; this is capable of being set in action by the employment of dilute acid, when a powerful current is transmitted along the wires, provided the circle is made complete by bringing them into metallic contact. When not in use, however, there is no communication between the wires, and consequently as the circuit is broken there is no current. Each wire is in communication with its own separate side of the brush, and there is no direct metallic communication between the two wires themselves or the two sides of the brush. When, however, the brush is applied to the skin, this latter at once completes the circuit, and the current of electricity set up in the battery passes along the silk-covered conducting wire through



one side of the metallic brush to the skin, through which it passes to the other side of the brush, and so returns to the battery; hence during the use of this brush there is a flow of galvanic electricity through the skin, the stimulating action of which is stated to have a decided effect in promoting the growth of the hair, and the due and efficient action of the perspiratory and excreting glands of the skin. The brush as represented in the engraving, consists of an external margin of white hair, and an inner metallic part, formed of very fine wires, to carry the current to the skin; the vacant space in the centre of the brush forces the current to pass through the skin, as the circuit cannot otherwise be completed.

In all cases where it is desirable to transmit a current through the skin, this brush may be advantageously employed, as there is no doubt that it is most efficient for that purpose. Nor does the use of the battery rest here; though small, it is sufficiently powerful to be available in those cases where it is required to employ the galvanic current in deep-seated affections, such as muscular contractions, &c. By removing the brush and attaching the wires represented as contained in the lid of the box, the current may be transmitted through the arms or any other part of the body; when its power will be at once rendered evident by the peculiar sensations to which it gives rise.

THE MONTH

LAW AND CRIME.

LISTER AND ANOTHER *v.* JONES.—MERCHANTS AND WHARFINGERS.

This case, tried in the City Sheriff's Court before Mr. Kerr, on the 13th ult., was an action to recover £6 18*s.* 4*d.*, balance of deficiency of goods entrusted to the defendant as a wharfinger, plaintiffs being merchants of 3, Lawrence Pountney-lane, and defendant carrying on business at Bull's Wharf, Queenhithe. The importance of the decision has induced us to publish a full report of the trial.

One of the plaintiffs said that in October last a number of casks of acetate of soda were sent to the defendant's wharf, there to be warehoused. When they were taken away, a considerable deficiency was noticed in them. They were weighed, and the deficiency amounted to the sum now claimed.—His Honour: How do you account for the loss, or how do you say it arose?—Plaintiff: I do not know; I can only say that it was so.—Mr. Peacock, for defendant: I must contend that, under the circumstances, defendant is not liable. These goods were taken in at the wharf and duly warehoused. One day there was an extraordinarily high tide, and the water came into the cellar in which the casks of acetate of soda were stowed, and surely defendant could not be held liable.—His Honour: Why not?—Mr. Peacock: It is the act of God.—His Honour: Surely not. If the defendant undertakes to warehouse the goods he is bound to do so safely.—Mr. Peacock: Here is a case which could not be imagined by either plaintiff or defendant. The tide had not risen to such a height on any previous occasion, and there could be no prevention.—His Honour: Then the question may arise as to whether wharfingers are not bound to house the goods in such a manner that loss shall not by any reasonable possibility ensue.—Mr. Peacock: I shall call witnesses as to the custom in these cases.—His Honour: You see that it will not be sufficient to call two or three wharfingers, you will have to show by a great number that it is not the custom to pay for deficiency in such cases.—John Pope said:—I am a lighterman. I recollect the day of this high tide. It was a very high tide, and the river overflowed the banks. The casks of acetate of soda were lying in a cellar, and the river flowed over the wharf into that cellar. Some of the other wharfingers have been called upon to pay damage. It was such a high tide as has not been known for years.—Isaac Blunden said that it was impossible to guard against the overflow. The water got into the cellar and dissolved a portion of the acetate of soda.—His Honour: The question is, have the goods, looking at their nature, been properly warehoused?—Witness: Such goods are very heavy, and are never put on the floors, which are, as a rule kept for light goods. It is not the custom to come upon the wharfinger for damages in a case of this kind.—Plaintiff said it was very clear the goods had not been properly housed, and if defendant was successful in this action what protection would there be for mercantile houses. The rent had been paid.—His Honour: I do not see how the defendant can set up non-liability after the charge has been made for rent. What does the receipt for rent say?—Plaintiff: I have set it off against the damage, so I have no receipt.—His Honour: It all depends upon the contract made at the time.—Mr. Peacock: The notice at the head of our present bills says, "fire and high tides," but I do not know what it might have been at the time of the present contract.—Plaintiff: I received a card from the defendant, and I can safely say that there is nothing in that about fire or overflow of water through high tides.—The card was then shown to his Honour, who found that nothing was mentioned about non-liability.—His Honour: It does not matter what may be on the bills now, but the question is what was on the card given to plaintiff when these goods were housed. It is a very important question, and if the Thames is likely to overflow, it will be for the Bankside wharfingers to build their quays higher. I cannot say that the goods have been properly housed, or duly taken care of, nor can I accept slight evidence as to the custom.—Plaintiff: I wish to make one observation. If the Thames had flown into the cellar, of course certain impurities would have been left in the casks, which were perfectly clean.—His Honour: I must hold that plaintiff has made out his case, and if defendant can satisfactorily establish a custom not to pay in such cases he can move for a new trial. Verdict for plaintiffs with costs.

A DISHONEST SERVANT—CHEMISTS AND DRUGGISTS DEFAMED.

On the 5th inst., at the Central Criminal Court, Francis Pettit, 40, clerk, Alexander Crochevoix, 32, carter, and Eugene Bruneau, 51, hawker, were indicted—Pettit for stealing 1lb. 9oz. of gutta percha tissue, a quantity of elastic silk, several pairs of knee-caps, and other articles, the property of David Lang, his master, and the other two prisoners were included in the indictment, charged with receiving the same property knowing it to have been stolen.

Mr. Metcalfe prosecuted; Mr. Montagu Williams defended Pettit, and Mr. Kemp defended Crochevoix. The prisoner Bruneau was not defended by counsel.

It appeared from the evidence of two city police constables that the prosecutor is a surgical instrument maker, residing at 26, Skinner-street, Snow-hill, and that the prisoner Pettit was in his employ, and the officers, having frequently seen the latter leave his master's premises at dinner time and join the other two, who had been waiting about, and proceed together to the waste ground of the Metropolitan Railway Company in Victoria-street, where the prisoner Pettit was in the habit of giving to the others parcels containing goods. Upon one occasion they watched the prisoners charged with receiving, to a house kept by a Mrs. Thatcher at 53, Turnmill-street; and this course of proceeding having been repeated, they again watched them, and saw them go from Mrs. Thatcher's to the shop of a Mr. Wolkam, 239, Tottenham-court road, which they entered by a side-door which was opened to them by Wolkam, to whom the prisoners were seen to hand a parcel. The officers followed, and, after inquiries, communicated with the prosecutor, who owned the property found, and hence this prosecution.

The prosecutor was then called, and deposed that Pettit was his clerk, and that he had no authority to send out or thus dispose of the goods. He said that he was a surgical instrument maker, and that the catheters and other articles produced had been taken from his stock.

In cross-examination by Mr. M. Williams the prosecutor was subjected to a series of rigorous interrogatories directed to show that he was engaged in trading in immodest prints, which he emphatically denied, but admitted he dealt in certain commodities of foreign manufacture which were not fit to be mentioned, but which he asserted *could be purchased at any chemist and druggist's shop in the metropolis*, and the sale of which was not confined to Holywell-street. He also denied that any goods he had shipped to a firm at Boulogne had been stopped by the authorities there on the ground of their immoral character.

The learned Counsel for the prisoners having addressed the jury on behalf of their respective clients,

The Recorder, in leaving the case to the jury, said that they had heard the evidence of the police as to the conduct of the prisoners, and the testimony of the prosecutor that Pettit had no right thus to deal with the property, and they would judge whether the other two prisoners were not perfectly aware that it had been stolen by Pettit. With regard to the prosecutor, although something had been urged as to the nature of his trade, the jury were not to think that on that account he was not a man to be believed.

The jury almost immediately found all the prisoners Guilty.

The Recorder, in passing sentence, commented upon Pettit's conduct as being very base, and ordered him to be kept in penal servitude for the term of five years. The sentence on Crochevoix was nine months, and on Bruneau, who had been before convicted, eighteen months' imprisonment with hard labour.

WHITING *v.* ENGLISH AND OTHERS.—STORAGE OF PETROLEUM.

This case, which came before the Court of Exchequer on the 23rd ult., was an action of ejectment to recover possession of some premises in St. Mary-axe. The real defendant, one Abraham Barnett, is the assignee of a lease of the premises in question for twenty-one years, and the lease contained a covenant against dangerous, noisome, noxious or offensive trades being carried on there, and also a covenant not to do anything to invalidate the insurances. The house was occupied by many sub-tenants, and the basement and cellars were let by Barnett to a Mr. Burhenne for three years from Lady-day, 1862, at a yearly rental of £50. Burhenne dealt in oils, and among them petroleum, the smell of which was described as being offensive. Several shopkeepers deposed to a loss of custom arising from the smell of it, and complained that it affected their health and appetite. A tavern-keeper on the opposite side of the street said that his meat would not keep in consequence, but denied, in cross-examination, that his profits had been enhanced by an inability on the part of his customers to eat as much as they would have done if their appetites had not been injured by the smell. The Globe Fire-office had refused to renew the policy of insurance, on the ground that petroleum was kept on the premises.

According to the defendants' evidence, the petroleum was not the crude petroleum—a spirit of petroleum which gives off inflammable vapour at a low temperature, and the possession of which is regulated by Act of Parliament—but a refined oil of petroleum, which is not more dangerous than paraffine or other oils, and that it had no offensive smell in bulk, although it might smell strongly while being drawn off from the cask. It was also asserted that an offer to the plaintiff of increase of rent had prompted the action, and that he offered to forego the action if the nuisance were abated. Relying on this, Barnett had induced Burhenne to relinquish his premises by allowing him a room on the first-floor as a counting-house for the remainder of his term at a nominal rent.

Ultimately the jury found for the defendants.

FORGED POST-OFFICE ORDERS.—WARNING TO TRADESMEN.

A short time since a part of a money-order book, with its counterfoils, was missed from the Post-office, in King-street, Covent-garden. About the 4th ult. a man engaged an unfurnished apartment at No. 16, Albert-terrace, Barnsbury-road, and, after stating that he intended to furnish it, gave directions that if any letters or parcels came directed to Mr. Brogden, they were to be received and taken care of. He then appears to have applied to several large houses in the silk trade for patterns of silk, which were in most cases forwarded at his request. On the Saturday following, orders were transmitted for various quantities, accompanied by a Post-office Order for payment of the amount, and requesting the goods to be sent without delay. In the latter part of the day some twenty or thirty parcels arrived, and about eight o'clock in the evening they were fetched away by a lad, who stated he had directions to call for them by Mr. Brogden; other parcels and letters followed, and were also removed. The order bears the stamp of "Feb. 7, No. 782," and is signed "R. Daniels, Postmaster."

ATTEMPTED SUICIDE BY COPPERAS—FACTITIOUS SOOT.

At the Clerkenwell Police Court, on the 2nd inst., Ann Bains, aged eighteen, and Ann Clark, aged seventeen, prostitutes, were charged with attempting to commit suicide by taking a quantity of poisonous solution of copperas at 6, Crown-court, St. Luke's.

Isaac Clark, aged about nineteen, a sweep, said that the prisoner Clark was his sister. When he went home last night he found two cups on the table, and, from what he saw on the floor, he suspected that the prisoners had taken poison. He spoke to them about the matter, but they denied it. He had some copperas in the cupboard, which he used in his business as a sweep, and found some of that in the cups. Finding that the prisoners had vomited about the place, and being fearful that they would die, he sent for a surgeon, and also for the police. One of the prisoners was so ill that she had to be taken to the hospital. The prisoners afterwards told him that they had each taken half a cup of copperas.

In reply to Mr. Barker, the prisoners said they did not know why they took the copperas.

Police-constable John Smith, 79 G. said he was called by the previous witness to take the prisoners into custody. They said they had taken half a cup of copperas, but did not say what for. The prisoner Bains cohabited with the witness Clark. When he went in he found both the prisoners in one bed. The prisoner Bains was so ill that she had to be taken to the hospital, and an emetic was given to her, and she vomited a good deal of copperas. The copperas was used by the man Clark in his business as a sweep.

Mr. Barker.—What can a sweep want with copperas in his business?

The police-constable said that Clark told him he used it for dyeing sawdust to sell to the farmers as soot.

Clark said he did it for a man named Montgomery. He had only been doing it for about three months, and he would take care he would never do it any more.

Mr. Barker said that a more disgraceful fraud he never heard of. It was one calculated to do the farmers an immense amount of harm. As for the prisoners, they had been guilty of a very serious offence, and he should remand them for a week, and direct that they should be seen by the chaplain at the House of Detention.

The prisoners were then removed.

ACCIDENTS.

FIRES.

About 3 o'clock on Saturday morning, (February 28th), a fire broke out at the extensive tar and turpentine distillery belonging to Messrs. Flockton, of Plough-road, Rotherhithe. Three private engines quickly attended, as well as three of the London brigade. The fire was caused through an escape of vapour from a boiler filled with pitch. Fortunately, owing to assistance being at hand, the fire was confined to that part of the premises in which it originated, the damage done not being considerable.

On the 3rd inst., about 5 o'clock a.m., a fire took place in the drying-house attached to the premises of Mrs. Ann Fisher, brushmaker, carrying on business at 51, Old Kent-road, near the Bricklayers' Arms. The engines of the London Brigade from Southwark-bridge-road, Tooley-street, and Waterloo-road stations having arrived, and there being ample supplies of water flowing from the mains of the Southwark and Lambeth companies, the firemen, under the direction of Mr. Foreman Henderson, went to work and succeded in saving the contiguous buildings, but the drying-house and store were nearly destroyed, and half of the roof burnt. The premises were insured in the Sun office.

The extensive premises, near Bristol, formerly used by Mr. George Hennett, the well-known railway contractor, for the preparation of timber, but which have more recently been in the occupation of Messrs. Robert and Daines, were all but entirely destroyed by fire on Tuesday afternoon, the 3rd inst. In the preparation of timber for resisting the action of moisture materials of a highly combustible nature are employed, and, despite all the precautions against accident, from some cause which is at present unexplained, a fire was discovered to have broken out about 3 o'clock p.m., and it spread with wonderful rapidity, throwing off dense masses of smoke. When the creosote and other similar materials caught, a tremendous volume of flame was engendered, and the hope of arresting the progress of the conflagration became small indeed. The brigades of the Royal, Imperial, and other offices exerted themselves to the utmost, and, the factory being near the river, an ample supply of water was obtained. The fire, however, resisted all efforts for its subjugation until the entire premises, with the tanks and other appliances, were reduced to a smouldering heap of ruins.

DEATHS FROM NITROUS FUMES.

A very painful sensation has been caused in Edinburgh by the death of Mr. Stewart, one of the masters, and also of the janitor of the Edinburgh Institution, a large educational establishment in Queen-street. Mr. Stewart was in the laboratory of the school preparing for some chemical experiments, and while carrying a jar of nitric acid across the room, it fell on the floor and was broken. He called the janitor to his assistance to wipe the floor and to endeavour to save a portion of the fluid. In this effort both unwittingly inhaled its deadly fumes. Mr. Stewart went home to dinner unconscious of the injury he had received. After an hour or two he began to experience difficulty of breathing, and sent for medical advice; but he very rapidly became worse, and expired at two o'clock on Wednesday morning, the 4th inst., about ten hours after the accident. The janitor was also taken ill, and, though he rallied for a time on Wednesday, he afterwards sank, and expired at five o'clock on Thursday morning. Several of the most eminent medical men in the city were called in to the unfortunate patients, but their skill proved unavailing. The case, it appears, is almost without a parallel in medical experience.

GENERAL NEWS.

UNITED SOCIETY OF CHEMISTS AND DRUGGISTS.

At a recent meeting of the Executive Committee of this Society, it was decided that ladies should be invited to the forthcoming Festival, on April 9th., the Committee trusting that the result will justify them in taking this step in the right direction.

USE OF METHYLATED SPIRIT IN PHARMACY.

The substitution of Methylated Spirit for pure Spirit of Wine in Pharmacy has for some time past been under discussion at the meetings of the Pharmaceutical Society. At the February meeting it was ordered that the following protest should be published in the Transactions, together with the opinion expressed on the same subject by the College of Physicians :—

"The attention of the Council having been directed for some time past to the use in pharmacy of methylated spirit, in the place of pure spirit of wine, they think it incumbent upon them, as the representatives of a Society founded for the promotion of pharmaceutical science in this country, to declare their opinion that such substitution is highly undesirable.

"Methylated spirit is a compound of pure spirit of wine to which one-tenth of its volume of imperfectly purified wood-naphtha has been added, the object of such addition being that of rendering the mixture *unpotable* through its offensive odour and taste. This spirit, being sold duty-free, can be employed by the chemical manufacturer, as a solvent in many processes, for which, from its greater cost, duty-paid spirit would be commercially inapplicable. But in the preparation of those medicines which contain spirit as the vehicle or menstruum by which more active substances are administered, the employment of a compound so uncertain and offensive as methylated spirit is, in the opinion of the Council, highly improper, and by no means to be justified upon the plea of its lower cost.

"The Council desire to draw the attention of Pharmaceutical Chemists to these facts, and earnestly request their co-operation in discountenancing such a substitution."

The following opinion was expressed, in 1857, by the Pharmacopœia Committee of the Royal College of Physicians, to whom the subject was referred by the President of the College.

"We are of opinion,—

"1. That wood-spirit, of which methylated spirit contains ten per cent., is a variable preparation, containing an uncertain quantity of empyreumatic oils of a noxious kind.

"2. That the manufacture and sale of methylated spirit have been permitted by the Legislature expressly on the ground that it is so nauseous that it cannot be substituted for, or used in place of ardent spirits.

"3. That preparations ordered in the London Pharmacopœia, when made with methylated spirit, differ materially in appearance, odour, and taste from the same when made with rectified spirit, and for the most part retain so much of the nauseous odour and flavour of wood-spirit, that they are liable to occasion the nausea, headache, and other disagreeable symptoms, which its empyreumatic oils, whether taken into the stomach or diffused in vapour and inspired, are known to produce.

"4. That permission to use methylated spirit in some officinal preparations would act as an encouragement to its surreptitious use in others in which it was not authorized.

"5. That there is no reason for the use of methylated spirit in the preparation of medicines, except the insufficient reason of its greater cheapness, which would be more than counterbalanced by the inferiority and noxious quality of the medicines thus prepared.

"6. That, consequently, the substitution of methylated for rectified spirit in *any* of the processes of the Pharmacopœia should be strictly prohibited."

PATTERN POST BETWEEN ENGLAND AND FRANCE.

The rules of the pattern post between this country and France appear to be greatly misunderstood by the public, and it is necessary, therefore, to call special attention to the following points :—1, That the patterns must be of no intrinsic value. This rule excludes all articles of a saleable nature, wearing apparel, medicines, keys, and indeed whatever may have a value of its own, whether a money value or other, apart from its mere use as a pattern; nor must the quantity of any material sent ostensibly as a pattern be so great that it could fairly be considered as having, on this ground, an intrinsic value. 2. The patterns must not bear any writing other than the address of the persons for whom they are intended, a manufacturer's or trade marks, numbers, and the prices of the articles. 3. The patterns must be sent in covers open at the ends, so as to be easy of examination. Samples, however, of seeds, drugs, and so forth, which cannot be sent in open covers, may be enclosed in bags of linen, paper, or other material, tied at the neck with string; closed bags, although transparent, must not be used for this purpose. 4. The rule which forbids the transmission through the post of any article likely to injure the contents of the mail bags or the person of any officer of the Post-office is of course applicable to the pattern post, and anything of the kind which may be observed will be stopped and not sent to its destination. 5. Articles such as the following have been noticed and have been detained as unfit for the post—viz., metal boxes, porcelain and china, fruit, vegetables, bunches of flowers, cuttings of plants, spurs, knives, scissors, needles, pins, pieces of machinery, watch machinery, sharp pointed instruments, samples of metals, samples of ore, samples in glass bottles, pieces of glass, acids of various kinds, curry-combs, copper or steel engraving plates, and confectionery of various kinds. By command of the Postmaster-General, Rowland Hill, Secretary.—General Post-office, February 28.

POLYTECHNIC INSTITUTION—BURNING TO DEATH AND SAVING FROM DEATH.

Professor Pepper has earned the gratitude of Paterfamilias by delivering a lecture upon combustible and incombustible dresses, and by illustrating in a most impressive manner the dangers of the former, and the advantages of the latter. The skeleton in every house at the present time is crinoline, and all who have wives, daughters, and sisters, must be interested in the methods which have been devised for robbing that skeleton of its terror-inspiring qualities. Professor Pepper shows how the most flimsy kind of fabric can be made flame-proof by means of certain chemicals. He tests the efficiency of the different salts which have been proposed, by holding a piece of muslin prepared with each in the flame of a spirit lamp. The pieces to which phosphate of ammonia, and tungstate of soda have been applied, stand the ordeal without showing the slightest disposition to flame, but those prepared with alum and borax, fail miserably, though of course they do not ignite so rapidly as the piece of unprepared muslin which is burnt to form a standard of comparison. The lecturer then expatiates upon the virtues of the "patent incombustible starch," manufactured at Rushton-street, Hoxton, and exhibits numerous delicate fabrics prepared with it, to prove that their original lightness and softness are not affected by the application. The lecture concludes with two grand effects. For the first, the lecturer brings forward a lay-figure, attired like a lady largely be-crinolined, and stands it on a plate of iron. A light applied to the skirt of the dress soon causes the figure to be lost in a pyramid of flame, and some of the more susceptible of the spectators shriek aloud at the frightful representation of a too frequent reality. With the aid of blankets the flames are extinguished, but the dilapidated appearance of the figure is perhaps even more appalling than the brilliant destruction of its garments. For the second effect a real lady attired in garments rendered incombustible by the patent starch, takes her place on the iron plate, and walks up and down between two troughs in which naphtha, or some similar liquid, is furiously flaming. The fire lightly plays upon her skirt, and leaves her unscathed, while she bravely tempts it to do its worst. A more striking experiment we have never seen, and Professor Pepper deserves great credit for having brought it forward in these woman-burning days.

The attractions of the Polytechnic are unusually powerful, and draw crowds of visitors, morning and evening. Those who have not seen the wonderful Luminous Shadow which haunts the lecture-room have to experience a new sensation. Never was such a life-like ghost seen; yet at the pleasure of Professor Pepper, it melts like "the baseless fabric of a vision" and leaves nothing behind but the bewilderment of the spectators. An admirable series of dissolving views, illustrating the career of the nursery heroine Cinderalla, is exhibited twice a day in the large theatre. The story of the young lady is quaintly told by Mr. Lionel Brough, who enlivens his narrative by singing some capital parodies.

GAZETTE.

BANKRUPTS.

Bell, William, Carlisle, chemist.
Dodgson, Samuel and Josiah, Mold-green, near Huddersfield, chemists.
Home, James Robinson, Church Stretton, Salop, chemist.
Moody, Alexander Robert, Forton, near Gosport, Hants, assistant-dispenser.
Pask, William, Lower Barton-street, Gloucestershire, manufacturing chemist.
Short, William Hooper, Charing Cross Hospital, Strand, dispenser of medicines.
Winterbottom, Henry, Manchester, apothecary.

PARTNERSHIPS DISSOLVED.

Cobb and Taylor, Colchester, artificial manure manufacturers.
Corbyn and Co., Holborn and Poultry, chemists ; as far as regards S. L. Stacey.
Decastro, Watson, and Palmer, St. George's-place, Knightsbridge, chemists.
Smith, J., and P. A. Mawdsley, Pentre, Flint, alkali manufacturers.
Tilly, W., and Son, Portsmouth, soap manufacturers.
Williams, T., and T. Bullen, Hereford-terrace, Leinster-square, Bayswater, chemists.

NOTES RELATING TO THE MANAGEMENT OF OUR JOURNAL.

Queries.—We cannot undertake to attend to those which are anonymous, or to send answers through the post.

Correspondence.—All communications should be addressed to the Editor, at 24, Bow Lane, E.C. ; those intended for publication should be accompanied by the real names and addresses of the writers.

Subscription.—The subscription to our Journal is *5s.* per annum, payable in advance. Should a receipt be required, a stamped envelope must be sent with the amount of subscription. A specimen number may be had upon application, price *6d.*

Post-Office Orders.—Post-Office Orders to be made payable at the General Post Office to the Publisher, James Firth, who is alone authorised to receive accounts.

Advertisers are particularly requested to write their names and addresses very distinctly, to prevent errors and disappointment.

Correspondence

UNGUENTUM HYDRARGYRI NITRATIS.

26, St. George's-pl., Hyde Park,
February 16th, 1863.

Sir,—Some years ago, my father and myself were bent on improving the Unguentum Hydrargyri Nitratis. We ran it through the whole gamut of preparation, making it with variable proportions of acid, (nitrous and nitric) oil and lard. We tried fresh butter, neats'-foot oil and glycerine, until it was determined by a committee of two, that sufficient materials had been wasted in the pursuit of knowledge. I then, more by accident than otherwise, consulted that somewhat neglected work, the *London Pharmacopœia*, and found that by strictly following its directions, and by the proper management of heat, an unexceptionable ointment was produced. I can therefore endorse from practical experience the remark contained in your last number, not only that the college process yields a satisfactory result, but that with due attention to heat and specific gravity, no better formula need be desired.

Yours truly, Joseph Ince.

THE TWO SOCIETIES AGAIN.

2, Bell-Yard, Doctors' Commons,
March 12, 1863.

Sir,—The short article of the *Pharmaceutical Journal* for this month, in relation to "The Two Societies" is a virtual abandonment of the writer's statements in the January number of that journal, and a tacit acknowledgment of the accuracy of mine in the last month's number of the Chemist and Druggist.

The style of the retirement from this controversy is amusing. "Let us throw dust into the eyes of observers that they may not see our discomfiture," is about the meaning of it. I am accused of substituting one set of resolutions for another. The text of the Manchester "Manifesto" with its resolutions, as the writer quoted it, being admitted, there was no occasion to reproduce it, and the introduction of another set of resolutions was not intended (as he disingenuously suggests) to substitute the "Manifesto," but to show that the arbitrary interpretation fixed upon it was extremely improbable, and inconsistent with the meaning of the Manchester Committee; and I am happy now to state upon authority (what I could then only conjecture) that the Manchester Committee utterly repudiate such interpretation.

The issue of this controversy to the trade is immense. They can now choose between the Pharmaceutical Society which excludes and degrades them, and the United Society which would include every competent chemist, and seeks the benefit of all. I leave the question of the difference between a school and a college, and whether the one or the other stood categorically amongst the objects we at first put forth, or was merely indicated in a foot note of our provisional prospectus, to the profound judgment of the propounder, believing as I do, that both propositions are trifling in the sight of such a momentous issue. I am, Sir,

Your obedient servant,
Cyrus Buott, Manager of the U. S.

SECOND ANNUAL FESTIVAL OF THE UNITED SOCIETY OF CHEMISTS AND DRUGGISTS.

Sir,—Will you kindly allow me to draw attention to our forthcoming Annual Festival, and to state that the Committee will be glad to receive the names of those gentlemen who are willing to act as Stewards on the occasion (involving no responsibility beyond the price of a dinner ticket).

The Committee having made arrangements to invite ladies to grace the entertainment, trust to be favoured with a numerous attendance.

An early application for tickets, by post or otherwise, at the offices of the Society is earnestly requested.

I am, Sir,
Your most obedient servant,
Offices—2, Bell-yard, C. F. Buott,
Doctors' Commons, E.C. Secretary.

THE COST OF THE PHARMACEUTICAL QUALIFICATION.

London, March 7th, 1863.

Sir,—I have recently passed the examination of the Pharmaceutical Society, and am now registered as a Pharmaceutical Chemist; all that it has cost me is ten guineas. I am 32 years of age, married, and in business. I never attended any of the Society's lectures, nor in any way availed myself of the educational arrangements there offered and provided. I have had no special opportunities of learning my business, nor do I take credit for possessing more than ordinary abilities; still, I can assure Mr. Buott and your numerous readers, that any person paying ordinary attention to the substances daily under his notice as a Chemist and Druggist, and doing a little systematic reading, may, if he wishes, successfully follow my example, and become a Pharmaceutical Chemist for the sum of ten guineas. If, however, youths neglect the opportunities they may have had during their apprenticeship or pupilage, or their masters fail in the performance of their contract, and these youths subsequently seek further instruction in the skill and knowledge of their business, they must expect it will cost them something—whether that instruction be drawn from the Society's eminent professors, or from any other qualified source. I enclose my address; but as I have no desire that my name should figure in print, I beg to subscribe myself, your obedient servant, Δ.

——March 7th, 1863.

Sir,—I noticed in Mr. Buott's letter, published in your last month's circular (amongst others), one paragraph that may, to use the author's rancorous volubility, appropriately be termed an *audacious* misrepresentation, respecting the cost of admission to the Pharmaceutical Society, *necessarily* incurred by a candidate from the country. Mr. Buott states that "instead of a man (even a single man, unencumbered by business) obtaining *a full position* in the Pharmaceutical Society by the payment of ten guineas, if he be a *provincial*, it will cost him at least fifty guineas.

Mr. Buott grossly errs in the above statement, as my individual experience will show. I have lately passed both examinations, and the cost to me was five guineas for the minor, and five guineas for the major examination—being ten guineas in all.

Without coming to London, I prepared myself in the country, having no communication with the Pharmaceutical Society. I had the ordinary interruptions attendant on our business to contend with, and do not boast of possessing abilities above the average scale; however, attention and moderate perseverance enabled me to pass the examinations, as I doubt not they will do others who will use them. I have therefore a perfect conviction that any young man, wherever he may be located, may easily prepare himself to pass the minor examination as soon as he is out of his apprenticeship, and his major examination for the title of Pharmaceutical Chemist in about two years after that.

There are not many young men who could not raise five guineas when they are out of their apprenticeship, and I hope there are none who could not manage their affairs so as to save five guineas during the ensuing two years for the major.

As you have been the means of promulgating a fallacy, I trust you will not object to be the means of communicating to your readers a fact, and oblige, Sir,

Your obedient servant,
A Young Man from the Country.

[Without endorsing the statement made by Mr. Buott, sen., in the open columns of our Journal, we must call attention to the weak points of the above letters. "Delta" resides in London; consequently, his personal experience does not affect the statement in question, which had special reference to provincial candidates. The "Young Man from the Country" has evidently underrated the expense, for his flying trip to London must have cost something. That he obtained his qualification for a comparatively small sum we can readily believe, but his case must be exceptional. If all candidates were like him, there would be no need of laboratory and a body of a professors at Bloomsbury-square.—Ed. *C. & D.*]

THE COMPOSITION OF MILK.

London, February, 1863.

Sir,—I think that you will alter your opinion about *the* Dr. Hassall—" who never loses an opportunity to blow his own trumpet"—as to his having "most satisfactorily established his claim to the supposed discovery of Dr. Boedecker," as regards the evening's milk being the richer.*

It appears that a Mr. Hodson Rugg, a surgeon, whose letter appears in the *Lancet* for the 17th of January, disputes the priority of Dr. Hassall's discovery, or that it is even a reliable truth that the evening's milk is as represented by the analyst. He states that he questioned the assertion in 1851, immediately after Dr. Hassall's report in the *Lancet*, "by the most supportable evidence," and forwarded his communication to that journal; but it was not published—though promised—because "the manuscript had been sent or given to Dr. Hassall to look over, who unfortunately lost it." I should say that it was a very convenient loss, for evidently Mr. Rugg had completely hidden the light of the great adulterating analyst under a bushel, otherwise the letter would have been published, and the writer have been made to smart for his temerity by one of the *Lancet's* cruel cuts.

I think it very unfair to correspondents that their communications should be sent to their favoured opponents, for their veto as to whether they should be published or not.

No doubt Mr. Rugg was too disgusted to re-write an article that had been so carefully lost. It would be well, sir, if you have space to publish that gentleman's communication, as also that of another correspondent, "An Agriculturist," on the same subject, in the *Medical Times and Gazette* for the 24th of January, which had previously been sent to the *Lancet*, but was rejected by the editor, who nevertheless made some very unfair remarks on the "Agriculturist." Both letters are well worth perusal, and, I think, re-publishing.

I am, Sir,
Your obedient servant,
FIAT JUSTITIA.

[We have not space for either of the communications referred to by our correspondent. We may inform our readers, however, that the "Agriculturist" states—on the authority of Boussingault, the great French chemist; Dr. Voelcker, of the Royal Agricultural College; and Mr. Rugg—that the variation in the richness of milk at different times of the day depends upon so many circumstances, that it is impossible to lay down any law on the subject. With regard to Dr. Hassall's supposed discovery, that the composition of milk varies still more at different periods of the same milking, the "Agriculturist" says:—"This has been practically known ever since cows have been milked; and, without troubling you with any lengthened account of why it is so, I will merely mention that Dr. Schüber, many years before Dr. Hassall made his observation, ascertained that the first-drawn milk contained only five, the second eight, and the fifth seventeen per cent. of cream. Besides, the last-drawn milk, or the strippings, has been from time immemorial practically known to have very much the largest per-centage of cream." We beg to thank our correspondent for calling our attention to this exposure of false pretensions.—ED. *C. & D.*]

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* See January number, p. 15.

NOTES AND QUERIES

Podophyllum Peltatum (G. H. C. DUNMOW).—This American remedy was fully described in our journal of January, 1861. It is an active cathartic, resembling jalap in its action on the bowels. The active principle to which the term *podophyllin* has been applied, possesses all the medicinal properties of the root, and is now generally administered instead of the extract, in doses of from gr. $\frac{1}{8}$ to $\frac{1}{4}$, and gr. j. to grs. iij.

Condy's Water Test (G. B. K., Stamford.)—We must refer you for information respecting the manner of applying the permanganato of potash test to Mr. H. B. Condy's recent work, entitled *Air and Water*; *their impurities and purification*. It is published by Davies of 54, Princes-street, Leicester-square, London. Price 3*s*. 6*d*.

New Cure for Coughs.—A subscriber asked some time since for a receipt for a good cough mixture. The following formula has been kindly forwarded to us by Mr. A. P. Towle:—Chlorodyne, guth. l.; syrup of tolu and mucilage of each f℥ss.; anise-water sufficient to make f℥iv.; mix. One or two teaspoonfuls to be taken occasionally when the cough is troublesome.

TRADE REPORT.

London, March 13th, 1863.

THE business transacted in Chemicals during the past month has been more moderate, the reduction in the rate of discount by the Bank of England not giving the least impetus to either the trade or exporters. A fair business has been done in Tartaric Acid at 1*s.* 6½*d.* Oxalic has met a steady sale at 8*d.* to 8¼*d.* Several sales in Citric have been made at 1*s.* 6½*d.* Chlorate of Potass remains quiet at 12*d.* to 12½*d.* Rather more doing in Bichromate, rather under 7*d.* Prussiate is dull at 12*d.* Small sales of Sal Acetos at 10½*d.* Iodine continues dull at 4*d.* A few sales made in Soda Ash at 2*d.* More doing in Sulphate of Copper at 31*s.* Sulphate of Ammonia sells steadily at 14*s.* 6*d.* to 15*s.*, according to quality. Cream Tartar is dull at 115*s.* Sal Ammoniac is quiet at 35*s.* 6*d.* to 37*s.*, according to quality. Flour of Brimstone is quiet at 11*s.* 6*d.* to 13*s.* Alum is more quiet; the price is now £7 5*s.* to £7 10*s.* Small sales in Bleaching Powder at 9*s.* 6*d.* to 10*s.* Soda Crystals rather scarce, and are held for 95*s.* ex ship. Resin is quiet, and a trifle lower. Small sales of French at 21*s.* to 21*s.* 6*d.*, and American 27*s.* 6*d.* to 28*s.* Turpentine is lower, and not much doing; American nominal at 110*s.*; and sales of French at 95*s.* Petroleum is dull and lower; the latest sales made were at 1*s.* 6*d.* per gallon for Refined. Crude is now on offer at £14, and Canadian at £10, with few buyers. Linseed Oil is less in demand, and the price has given way to 43*s.* on the spot, and 42*s.* 6*d.* in Hull. Rape is cheaper; refined 54*s.*, and brown 51*s.* to 51*s.* 6*d.* Both Canada Pot and Pearl Ashes remain the same.

In the Drug market a fair business has been done throughout the month, generally at steady prices. More demand for Camphor; the last sales made at 130*s.* to 135*s.* for fair. Sulphate Quinine is dearer; English 7*s.*, and Pellitiers 6*s.* 9*d.* Several sales made in Oil Cassia and Aniseed, the former at 8*s.* 4*d.* and the latter at 5*s.* 9*d.* All kinds of Bark are firm, with a steady business. Large sales of Castor Oil have been made at about ¼*d.* per lb. lower prices, middling to fine pale selling at 5¼*d.* to 6*d.* Turkey Opium at the sales sold at 18*s.* 6*d.* to 19*s.* 3*d.* for good, and 14*s.* to 14*s.* 6*d.* for middling. Gums are without change: some Turkey picked Arabic sold at 60*s.* to 90*s.*, and good 110*s.* Turkey Blue Galls are held for 100*s.* to 105*s.* China Star Aniseed sold at 100*s.* to 105*s.* 150 bales Tinnevelly Senna sold, fair 4¾*d.* to 6½*d.*, good 9¾*d.* to 10¼*d.*, with some fine at 13½*d.* to 15*d.* Cape Aloes sold at 44*s.* to 48*s.* for middling and good, being 2*s.* to 3*s.* lower. Barbadoes and Soccotrine steady. Sales of Jalap at 4*s.* 3*d.* to 4*s.* 6*d.* 166 chests fine Rhubarb sold, round 3*s.* 9*d.* to 3*s.* 11*d.*, and flat 4*s.* 3*d.* to 4*s.* 5*d.* Roll Annatto sold at 6½*d.* to 8*d.* Balsam Capivi held for 1*s.* 5*d.* to 1*s.* 6*d.* Gambier is quieter at 20*s.* 3*d.* to 20*s.* 6*d.* Small sales in Cutch at 25*s.* to 26*s.* Saltpetre is better; 5 lbs. and under is selling at 38*s.* to 38*s.* 3*d.*

PRICE CURRENT.

☞ *These quotations are the latest for* ACTUAL SALES *in Mincing Lane. It will be necessary for our retail subscribers to bear in mind that they cannot, as a rule, purchase at the prices quoted, inasmuch as these are the* CASH PRICES IN BULK. *They will, however, be able to form a tolerably correct idea of what they ought to pay.*

	1863.				1862.			
	s.	d.	s.	d.	s.	d.	s.	d.
ARGOL, Cape, pr ct.	85	0	102	6	97	6	105	0
French	40	0	..60	0	60	0..	85	0
Oporto, red	45	0	..48	0	45	0..	50	0
Sicily	70	0	..78	0	65	0..	80	0
Naples, white.....	65	0	..80	0	65	0..	80	0
Florence, white...	90	0	97	6	90	0	100	0
red....	80	0	..85	0	85	0..	87	6
Bologna, white....	110	0	115	0	115	0	120	0
ARROWROOT, duty 4½ per cwt.								
Bermuda ...per lb.	1	2 ..	1	8	0	11..	1	4
St. Vincent........	0	4 ..	0	7	0	2¾	0	6
Jamaica.	0	4½..	0	6¼	0	2½	0	4
Other West India.	0	3 ..	0	5	0	2¼	0	3¼
Brazil...........	0	2 ..	0	3½	0	1½	0	2
East India........	0	2½..	0	4¼	0	1½	0	2½
Natal............	0	4½..	0	9	0	2½	0	7½
Sierra Leone......	0	3½..	0	5½	0	2½	0	3
ASHES.....per cwt.								
Pot, Canada, 1st sort	34	0 ..	0	0	39	0..	0	0
Pearl, do. 1st sort.	33	6 ..	0	0	38	0..	0	0

	1863.				1862.			
BRIMSTONE,	s.	d.	s.	d.	s.	d.	s.	d.
rough......per ton	135	0	0	0	155	0..	0	0
roll...............	190	0	0	0	270	0	0	0
flour..............	240	0	260	0	300	0	0	0
CHEMICALS,								
Acid—Acetic, pr lb	0	3½..	0	4	0	4..	0	4½
Citric	1	6½..	1	6¾	1	8½	1	9
Nitric........	0	4 ..	0	5½	0	3½	0	4
Oxalic........	0	8 ..	0	8¼	0	9¼	0	10
Sulphuric	0	0¾..	0	0	0	0¾	0	0
Tartaric crystl	1	6½..	1	6¾	1	8¼	1	9
powdered.	1	7 ..	1	7½	1	9..	0	0
Alum .....per ton.	145	0	147	6	135	0	140	0
powder	160	0	0	0	150	0..	0	0
Ammonia. Crb. lb.	0	5 ..	0	5¼	0	5½	0	6
Sulphate per ton	290	0	300	0	270	0	290	0
Antimony, ore....	200	0	230	0	260	0	280	0
crude, per cwt	24	0	..28	0	24	0..	28	0
regulus	43	0	..43	6	46	0..	48	0
French star...	43	0 ..	0	0	47	0..	0	0
Arsenic, lump....	16	6	..17	0	17	0..	18	6

PRICE CURRENT—*continued.*

	1863.				1862.			
CHEMICALS.	s.	d.	s.	d.	s.	d.	s.	d.
Arsenic powder ..	6	6 ..	7	0	8	3..	10	0
Bleaching Powder.	9	0 ..	10	0	8	6..	9	6
Borax, E. I. refind	52	6 ..	0	0	52	6..	0	0
British........	50	0 ..	52	0	64	6..	65	0
Calomel....per lb.	2	9 ..	0	0	2	10..	0	0
Camphor, refined.	1	9 ..	2	0	2	8..	2	10
Copras. grn. pr. tn.	60	0 ..	65	0	65	0..	0	0
Crrsiv. Sublmte. lb	1	11 ..	0	0	1	11..	2	0
Green Emrld. pr. lb	0	0 ..	0	0	0	9..	0	11
Brunswk. cwt.	0	0 ..	0	0	14	0..	42	0
Iodine, dry, pr. oz.	0	3¾..	0	4	0	4	0	4¼
Magnesia Crbn. ct.	42	6 ..	45	0	42	6..	45	0
Calcined, lb...	1	6 ..	1	8	1	6..	0	0
Minium red, pr. ct.	22	0 ..	22	6	22	6..	23	0
orange........	32	0 ..	33	0	35	0..	0	0
Ptsh. Bichrom. lb.	0	7 ..	0	0	0	8¼	0	8½
Chlorate	1	1 ..	0	0	0	10¼	0	0
Hydriodate oz.	0	4½..	0	5	0	5	0	5¼
Prussiate ..lb.	1	0 ..	0	0	1	0½	1	1
red..	2	1 ..	2	2	2	2..	0	0
Precipit. red pr. lb	2	9 ..	0	0	2	9..	2	10
white...	2	9 ..	2	10	2	10..	0	0
Prussian Blue.....	1	0 ..	1	10	1	6..	1	10
Rose Pink....pr ct.	29	0 ..	0	0	29	0..	30	0
Sal-Acetos...pr lb.	0	10½..	0	0	0	10½	0	11
Ammoniac, ct.								
British...	35	0 ..	37	6	36	0..	38	0
Epsom........	8	0 ..	8	6	8	3..	8	6
Glauber	5	0 ..	5	6	5	6..	0	0
Soda, Ash, pr deg..	0	2 ..	0	0	0	2⅛	0	2¼
Bicarbonate..ct.	12	0 ..	12	6	12	0..	13	0
Crystals per ton.	95	0 ..	0	0	90	0..	95	0
Sgr. Lead, whte, ct.	37	0 ..	0	0	37	0..	38	0
brown........	25	0 ..	0	0	28	0..	0	0
Slphte. Quinine oz								
Britsh in bttl.	7	0 ..	0	0	7	6..	0	0
Foreign	6	9 ..	0	0	6	9..	7	0
Sulpht. Zinc..cwt.	14	6 ..	15	0	14	6..	15	0
Verdigris........lb.	1	1 ..	1	3	1	3..	1	5
Vermilion, English	2	8 ..	3	1	3	0..	3	4
China ..	2	2 ..	2	4	2	6..	2	8
Vtrl. blue or Romn.								
per cwt.	31	0 ..	33	6	35	0..	36	0
COCHINEAL, pr. lb.								
Honduras, black..	2	6 ..	4	2	2	8..	4	2
silver...	1	4 ..	3	4	1	5..	3	2
Mexican, black....	2	7 ..	3	0	2	5..	2	8
silver ..	2	6 ..	2	7	2	3..	2	4
Lima	2	7 ..	3	2	2	6..	3	0
Teneriffe, black ..	2	7 ..	3	2	2	6..	3	0
silver ..	2	6 ..	2	8	2	3..	2	6
DRUGS,								
Aloes, Hepatic, ct.	130	0	200	0	130	0	190	0
Socotrine	220	0	500	0	150	0	480	0
Cape, good	45	0 ..	51	0	38	0..	42	0
inferior.	26	0 ..	40	0	20	0..	36	0
Barbadoes....	60	0	360	0	60	0	420	0
Ambergris, gray.								
per oz..	15	0 ..	18	0	35	0..	38	0
Angelica Root, ct..	20	0 ..	35	0	20	0..	35	0
Aniseed, China str.	100	0	110	0	70	0..	80	0
German, &c.	19	0 ..	38	0	22	0..	40	0
Balsam Canada, lb	1	3 ..	0	0	1	4..	0	0
Capivi......	1	5 ..	1	6	1	9..	1	10
Peru........	4	10 ..	0	0	4	6..	4	7
Tolu	3	10 .	0	0	3	10..	0	0
Bark Cascarilla ct.	23	0 ..	40	0	24	0..	49	0
Peru crown & grey								
per lb	1	0 ..	2	3	1	2..	2	6
Calisaya, flat...	3	3 ..	4	0	3	10..	4	0
quill	3	0 ..	3	9	3	6..	3	9
Carthagena....	1	3 ..	2	4	1	2..	2	4
Pitayo	1	9 ..	2	6	1	10..	2	8
Red	3	0 ..	7	6	2	6..	6	0
Bay Berries, pr ct..	22	0 ..	40	0	22	0..	40	0
Bucca Leaves, lb.	0	2½..	1	6	0	3..	1	3
Camomile Flowers	35	0 ..	70	0	40	0..	75	0
Camphor, China ..	120	0	127	6	210	0	220	0
Canella Alba......	19	0 ..	38	0	19	0..	40	0
Cantharides, pr lb.	2	3 ..	2	4	2	3..	2	6
Cardamoms. Mlbar.								
good............	6	9 ..	7	3	4	9..	5	0

	1863.				1862.			
DRUGS.	s.	d.	s.	d.	s.	d.	s.	d.
Cardamoms, inferior	5	8 ..	6	8	4	4..	4	8
Madras..	3	6 ..	5	8	3	6..	4	10
Ceylon..	4	9 ..	5	0	4	3..	4	6
Cassia Fistula pr ct.	15	0 ..	61	0	13	0..	23	0
Castor Oil, 1st pale, lb	0	6 ..	0	6¼	0	6½	0	6¾
second......	0	5¼..	0	5¾	0	5½	0	6¼
infr. & dark	0	4½..	0	5	0	5¼	0	5½
Bombay. in csks.	0	5 ..	0	5¼	0	5..	0	5½
Castorum	1	2 ..	26	0	1	0..	26	0
China Root, pr ct.	10	0 ..	15	0	10	0..	11	0
Coculus Indicus ..	10	0 ..	13	0	14	0..	15	0
Cod-liver Oil, gal...	4	2 ..	6	0	4	9 .	6	0
Clcynth. apple, lb..	0	8 ..	1	0	0	7..	1	0
Colombo Rt. pr ct..	15	0 ..	48	0	15	0..	48	0
Cream Tartar, pr ct.								
French	115	0	117	6	127	6	130	0
Venetian	117	6	0	0	0	0	130	0
grey	110	0	0	0	112	6	115	0
brown........	97	6	105	0	105	0	115	0
Croton Seed	42	0 ..	60	0	63	0	75	0
Cubebs	105	0	115	0	110	0	115	0
Cummin Seed	27	0 ..	35	0	45	0..	48	0
Dragon's bld. reed.	200	0	300	0	200	0	240	0
lump...	95	0	260	0	130	0	200	0
Galangal Root....	24	0 ..	32	0	20	0..	23	0
Gentian Root	21	0 ..	22	0	17	0..	19	0
Guinea Grains, ...								
per cwt.	47	0 ..	50	0	52	0..	53	0
Honey, Narbonne.	60	0 ..	80	0	60	0..	85	0
Cuba	24	0 ..	36	0	28	0..	36	0
Jamaica	26	0 ..	75	0	26	0..	65	0
Ipecacuanha, pr. lb.	6	10 .	7	0	6	10..	7	0
Isinglass, Brazil...	0	10 ..	3	10	0	10..	3	10
East India......	0	9 ..	3	0	0	6..	3	0
West India	3	0 ..	3	0	3	0..	3	7
Russian........	9	6 ..	13	0	11	6..	13	0
Jalap	1	0 ..	5	0	1	9..	5	0
Jniper Berries cwt.								
German & Frnch	8	0 ..	9	0	9	0..	11	0
Italian	8	0 ..	10	0	10	0..	12	0
Lmon Juice, pr deg.	0	0½..	0	0	0	0½	0	0⅝
Liquorice, per cwt.								
Spanish	83	0 ..	90	0	83	0..	90	0
Italian	85	0 ..	95	0	85	0..	95	0
Manna, flaky	3	0 ..	3	6	2	6..	0	0
small	1	6 ..	0	0	1	6..	1	9
Musk......per oz.	18	0 .	28	0	20	0..	33	0
Nux Vomica......	9	0 ..	11	0	8	0..	9	0
Opium, Turkey ..	16	0 ..	19	0	14	0..	15	6
Egyptian..	7	0 ..	12	0	6	0..	11	0
Orris Root, pr cwt.	26	0 ..	28	0	27	0..	29	0
Pink Root, per lb...	3	0 ..	3	3	1	9..	2	2
Quassia (bit. wd) ton	90	0	100	0	70	0..	80	0
Rhatania Root, lb.	0	9 ..	1	3	0	5..	0	8
Rhbrb. China, rnd.	1	6 ..	4	4	0	9..	2	10
flat	1	9 ..	4	6	1	3..	3	0
Dutch, trmd.	5	6 ..	6	0	3	6..	4	0
Russian	12	6 ..	13	0	11	6..	0	0
Saffron, Spanish ..	34	0 ..	36	0	44	0..	45	0
Salep ....per cwt.	140	0	160	0	170	0	190	0
Sarsaparilla, Lima	0	10 ..	1	4	0	10..	1	3
Para	0	9 ..	1	1	0	10..	1	2
Honduras.	0	8 ..	1	3	0	11..	1	4
Jamaica..	1	2 ..	2	2	1	3..	2	4
Sassafras..per cwt.	0	0 ..	0	0	11	0..	12	0
Scammony. per lb.								
virgin	27	0 ..	34	0	28	0..	36	0
second ..	14	0 ..	24	0	14	0..	24	0
Seneka Root......	4	6 ..	4	9	2	4..	2	6
Senna, Calcutta ..	0	0 ..	0	0	0	1½	0	2½
Bombay	0	2½..	0	4	0	2	0	4
Tinnevelly..	0	4 ..	1	9	0	2½	1	6½
Alexandria	0	5 ..	0	7	0	3..	0	6
Snake Root	3	6 ..	0	0	1	10..	2	0
Spermaceti, refined	1	0 ..	1	2	1	0..	1	2
Squills	0	1 ..	0	2½	0	1..	0	2
Tamarinds, E. Ind.	10	0 ..	13	6	10	6..	13	0
W.I. per cwt.	18	0 ..	34	0	15	0..	30	0
Valerian Root, Eng	20	0 ..	40	0	20	0..	40	0
Terra Japonica—								
Gambier, cwt ..	20	0 ..	21	0	17	0..	17	6
Cutch, cwt	25	0 ..	26	0	27	0..	29	0

PRICE CURRENT—*continued.*

	1863.				1862.			
DRUGS	s.	d.	s.	d.	s.	d.	s.	d.
Vanilla, Mexican lb	25	0	..55	0	20	0	..55	0
Wormseed, pr cwt.	2	0	.. 0	0	2	0	.. 0	0
GUM...... per cwt.								
Ammoniac, drop..	100	0	120	0	90	0	120	0
lump ..	15	0	..65	0	15	0	..70	0
Animi, fine pale ..	220	0	250	0	290	0	320	0
bold amber.	190	0	210	0	220	0	270	0
medium....	160	0	180	0	160	0	180	0
small & dark	100	0	155	0	120	0	160	0
ordinry dark	50	0	..95	0	40	0	..90	0
Arab. E.I.f. palepkd	52	0	..59	0	50	0	..57	0
unsortd, good to f	34	0	..48	0	32	0	..45	0
red and mixed	20	0	..30	0	28	0	..30	0
siftings	15	0	..30	0	18	0	..23	0
Turkey, pkd. gd to f.	115	0	180	0	110	0	155	0
second & infr.	40	0	110	0	48	0	105	0
in sorts	32	0	..50	0	30	0	..42	0
Gedda............	22	0	..24	0	28	0	..29	0
Barbary, white ..	39	0	..50	0	34	0	..38	0
brown ..	26	0	..27	0	26	0	..28	0
Australian...... .	23	0	..25	0	26	0	..28	0
Assafœt. fr. to gd.	30	0	112	0	36	0	110	0
Benjamin, 1st. qual.	350	0	630	0	360	0	660	0
2nd qual	280	0	300	0	160	0	330	0
3rd ,,	50	0	200	0	60	0	150	0
Copal, Angola red.	95	0	100	0	100	0	125	0
pale.	85	0	100	0	95	0	105	0
Benguela....	85	0	100	0	105	0	140	0
Sierra Lne lb	0	6	.. 1	6	0	7	.. 1	9
Manilla pr ct	18	0	..44	6	20	0	..40	0
Dammar ple. pr ct	36	0	..48	0	40	0	..50	0
Galbanum........	100	0	120	0	100	0	120	0
Gmbge. pkd. pipe	160	0	190	0	140	0	180	0
in sorts.....	90	0	150	0	80	0	110	0
Guaiacum ..pr. lb.	0	6	.. 1	5	0	7	.. 1	6
Kino ....per cwt.	160	0	240	0	200	0	210	0
Kowrie..........	36	0	..38	0	23	0	..26	0
Mstic. pkd. pr lb..	5	0	.. 5	3	6	0	.. 6	6
Myrrh gd & fi pr ct	150	0	170	0	160	0	180	0
sorts........	70	0	130	0	70	0	130	0
Oliganum, pl. drop	60	0	..67	6	52	0	..67	0
ambr & yel.	45	0	..56	0	44	0	..55	0
mixd. & dk.	16	0	..35	0	12	0	..35	0
Senegal	42	0	..46	0	38	0	..40	0
Sandrac..........	85	0	110	0	75	0	100	0
Tragacanth, leaf..	180	0	300	0	180	0	320	0
in sorts.	100	0	130	0	100	0	130	0
OILS......per tun.	£	*s.*	£	*s.*	£	*s.*	£	*s.*
Seal	42	0	..47	10	35	0	..41	0
Sperm, body......	84	0	..85	0	93	0	.. 0	0
Cod..............	47	10	..48	0	39	0	.. 0	0
Whale, Greenland.	0	0	.. 0	0	0	0	.. 0	0
Sth Sea pale	42	0	..44	0	35	10	..36	0
E. I. Fish...	38	10	..39	0	30	10	..32	10
Olive, Galipoli, ton.	59	0	.. 0	0	56	10	..57	0
Florence, ½-chst.	1	0	.. 1	2	20	0	..22	0
Cocoant. Cochn. tn	53	6	..54	0	49	6	..50	6
Ceylon	51	0	..51	6	49	6	.. 0	0
Sydney	46	0	..52	0	43	0	..49	0
Ground Nut & Gin.								
Bombay........	47	10	.. 0	0	44	10	..45	0
Madras	50	0	.. 0	0	45	10	.. 0	0
Palm, fine........	38	0	..39	0	42	0	..43	0
Linseed	43	0	.. 0	0	36	0	.. 0	0
Rapesd. Engl. pale	53	10	.. 0	0	48	0	.. 0	0
brown.......	51	0	.. 0	0	46	0	.. 0	0
Foreign do ..	54	10	.. 0	0	49	0	.. 0	0
brown......	51	10	..52	0	46	6	.. 0	0
Lard	47	0	.. 0	0	51	0	.. 0	0
Tallow	39	0	..40	0	37	0	.. 0	0
Rock Crude	10	0	..14	0	0	0	.. 0	0
OILS, Essential—	*s.*	*d*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
Almond essen. lb.	19	0	.. 0	0	19	0	.. 0	0
expressed ..	0	0	.. 0	0	1	0	.. 0	0
Aniseed..........	5	9	.. 5	10	5	11	.. 6	0
Bay.......pr cwt.	110	0	120	0	120	0	.. 0	0
Bergamott, pr lb.	7	0	.10	6	6	6	..14	0
Cajeputa, bond, oz.	0	2½	.. 0	2¾	0	1½	0	2
Caraway....pr lb.	4	3	.. 5	6	4	3	.. 6	0
Cassia	8	3	.. 8	4	8	10	.. 9	0
Cinamon (in b), oz	1	6	.. 3	6	1	0	.. 4	0
Cinnamon Leaf...		2	.. 0	4½	0	2	.. 0	4
Citronel..........			.. 0	6½	0	4½	.. 0	5
OILS.	s.	d.	s.	d.	s.	d.	s.	d.
Clove	0	2	.. 0	4	0	4	0	0
Croton	0	0	.. 0	0	0	3	0	4
Juniper ....per lb.	1	10	.. 3	0	1	10	.. 3	0
Lavender	2	6	.. 4	6	2	6	.. 5	0
Lemon	4	0	.. 9	0	5	0	..10	6
Lemongrass, pr oz	0	6½	.. 0	7	0	5	0	6
Mace, ex	0	1½	.. 0	2	0	1½	0	2
Neroli............	5	0	.. 7	0	6	0	.. 9	0
Nutmeg	0	1	.. 0	2	0	1	0	1
Orange ....per lb.	5	0	.. 6	6	6	6	.. 7	0
Otto Roses, per oz	14	0	..22	0	15	0	..24	0
Peppermint, pr lb.								
American	8	0	..13	0	7	6	..13	0
English	33	0	..34	0	33	0	..38	0
Rhodium ..per oz.	3	6	.. 5	6	3	9	.. 6	0
Rosemary..per lb.	1	8	.. 3	0	1	10	.. 3	0
Sassafras	3	0	.. 4	0	3	6	.. 4	6
Spearmint........	5	0	.. 8	6	5	0	..12	6
Spike	1	3	.. 1	6	1	3	.. 1	6
Thyme	1	9	.. 2	3	1	9	. 2	6
PITCH, Brtsh, pr cwt.	12	0	.. 0	0	7	0	.. 0	0
Swedish	0	0	.. 0	0	10	6	.. 0	0
SALTPETRE, pr cwt.								
Bngl, 6 p.c. or under	37	6	..38	6	38	0	..38	6
over 6 per cent.	35	6	..37	0	36	6	..37	6
Madras	35	0	..36	6	35	6	..37	0
Bombay	32	0	..36	0	34	6	..36	6
British-refined....	40	6	..41	6	40	6	..41	0
Nitrate of Soda ..	13	9	..14	0	13	6	..14	6
SEED, Canary, pr qr.	40	0	..50	0	40	0	..50	0
Caraway, Eng, p. c.	0	0	.. 0	0	23	0	..25	0
German, &c	0	0	.. 0	0	0	0	.. 0	0
Coriander	10	0	..12	0	15	0	..17	0
East India......	10	6	..11	0	0	0	.. 0	0
Hemp	40	0	..44	0	46	0	..50	0
Linseed, Black Sea	64	6	..66	0	57	0	.. 0	0
Calcutta........	63	0	..68	0	59	0	..61	0
Bombay........	70	0	..71	0	65	0	.66	0
Egyptian	62	0	..65	0	56	0	..57	0
Mustard, brn, p. bhl	7	0	..12	0	7	0	..10	0
white..	7	0	.. 8	6	6	0	.. 9	0
Poppy, E.I. per qr.	61	6	..62	0	60	0	..61	0
Rape, English	0	0	.. 0	0	0	0	.. 0	0
Danube	0	0	.. 0	0	0	0	..70	0
Calcutta, fine ..	67	0	..70	0	66	0	.. 0	0
Bombay........	70	0	..78	0	0	0	..72	0
Teel, Sesme or Gngy	68	0	..72	0	65	0	..70	0
Cotton ....per ton	180	0	.. 0	0	150	0	0	0
Gnd. Nut Krnels, tn	340	0	350	0	350	0	360	0
SOAP, Lnd. yel. pr ct.	22	0	..36	0	21	0	..36	0
mottled	36	0	..38	0	34	0	..36	0
curd........	50	0	.. 0	0	50	0	.. 0	0
Castile	40	0	..41	0	39	0	..40	0
Marseilles	40	0	..42	0	40	0	..41	6
SOY, China, per gal.	2	6	.. 2	7	2	3	.. 2	7
Japan	0	10	.. 1	0	0	8	.. 0	10
SPONGE, Turk. f. pkd	20	0	..24	0	20	0	..24	0
fair to good	8	0	..18	0	8	0	..18	0
ordinary..	3	0	.. 6	0	3	0	.. 6	0
Bahama ..	0	4	.. 1	3	0	3	.. 1	3
TURPENTINE,								
Rough..per cwt.	0	0	.. 0	0	23	0	.. 0	0
Spirits, French ..	0	0	..95	0	0	0	.. 0	0
American, incsks	110	0	0	0	64	0	.. 0	0
WAX, Bees, English	170	0	175	0	172	6	175	0
German	162	6	180	0	175	0	180	0
American	165	0	175	0	160	0	170	0
white fine	0	0	.. 0	0	0	0	0	0
Jamaica	165	0	180	0	175	0	180	0
Gambia	170	0	175	0	160	0	170	0
Mogadore	120	0	155	0	120	0	160	0
East India........	140	0	170	0	140	0	170	0
ditto, bleached..	170	0	230	0	165	0	200	0
vegetable, Japan..	68	0	..85	0	57	6	..78	0
WOOD, DYE, per ton,								
Fustic, Cuba	140	0	155	0	160	0	165	0
Jamaica	120	0	130	0	105	0	0	0
Savanilla	120	0	125	0	105	0	115	0
Zante	105	0	..0	0	100	0	105	0
Logwood, Cmpchy	180	0	190	0	190	0	200	0
Honduras	135	0	140	0	135	0	140	0
St. Domingo. ..	105	0	110	0	140	0	145	0
Jamaica........	100	0	102	6	130	0	145	0

PATENTS

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1883. C. COCKRANE. *Improvements in the manufacture of aluminate of soda and potash.* Dated June 27, 1862.

Here slags obtained from the blast furnace, used in the manufacture of iron, are reduced to a powdery form by any of the well-known methods, the best being first to run the slag whilst in a molten state direct from the blast furnace into water. The wet friable slag thus obtained is dried and then crushed between a pair of cylinder rollers. The dry crushed slag is now intimately mixed with a salt of soda or potash, in the proportions of one part of the dried salt (the carbonate of soda or potash being preferred), to four parts by weight of slag, containing about 23 per cent. of alumina. These proportions, however, may be varied, and should vary with the percentage of alumina in the slag. The mixture thus obtained is next thrown upon the hearth of an ordinary reverberatory, or other suitable furnace, in quantities varying of course with the size of the furnace—say, from four to seven cwts. a charge—and there subjected to a temperature somewhat above cherry red heat, but falling short of actual fusion of the ingredients in the furnace, which are to be repeatedly stirred by the workmen, so as constantly to expose fresh surfaces to the action of the heat. The completion of the process is ascertained by removing, from time to time, a small quantity of the contents of the furnace and testing it with acid, using by preference hydrochloric acid. When effervescence ceases on the addition thereof, the materials are drawn from the furnace, and next subjected to the well-known process of lixiviation, by which the soluble ingredients of the products of the furnace, namely, the aluminate of soda or potash, is dissolved out; the liquor containing the salt is then decanted into an evaporating pan, which may be either heated from above or below, and the aluminate of soda or potash obtained therefrom by evaporation. *Patent completed.*

1891. A. A. CROLL. *Improvements in the treatment of ammoniacal liquor of gasworks.* Dated June 27, 1862.

This invention has for its object economy in the treatment of ammoniacal liquor of gasworks when obtaining salts of ammonia; as also the avoidance, or great mitigation, of the inconvenience and annoyance arising from the treatment of such liquor. Steam, from a suitable boiler, is conveyed into ammoniacal liquor contained in a closed chamber, and the combined vapour and steam resulting are conveyed from the upper part of this chamber into other ammoniacal liquor contained in another closed chamber, placed somewhat higher than the preceding, in order that, as the ammoniacal liquor in the previous chamber becomes spent, it may be supplied from the second, and, if desired, other number of such ammoniacal chambers may be employed. From the last ammoniacal chamber, the vapour resulting, combined with particles of steam, are conveyed into a closed compartment, or chamber, or a vessel containing acid adapted to the salt of ammonia desired to be obtained. Thus, supposing the salt desired is sulphate of ammonia, then this last chamber will contain sulphuric acid, and it is, at its upper part, divided into two compartments, one open at the top, the other closed by a cover, and a partition dipping below the surface of the acid liquid therein, and below the mouth of the pipe conveying the vapour and steam thereto from the last ammoniacal chamber. Any vapour arising from the closed compartment of this vessel is conveyed into similar acid in another closed chamber used as a reservoir. From the upper part of this last closed chamber the sulphuretted hydrogen liberated is conveyed to the furnace supplying a vitriol chamber. *Patent completed.*

2075. W. CLARK. *An improved pomade or balsam termed "Balsam Achille."* (A communication.) Dated July 21, 1862.

This balsam or pomade is made of resin and galipoli, white fat, and suet, virgin and yellow wax, fine olive oil, camphor, white soap, benzoin, spirits of wine, and essence of lavender. The above matters are mixed together, the solids being dissolved in the liquids so as to form a homogeneous composition. This odoriferous cosmetic is first melted and then applied by friction. *Patent completed.*